

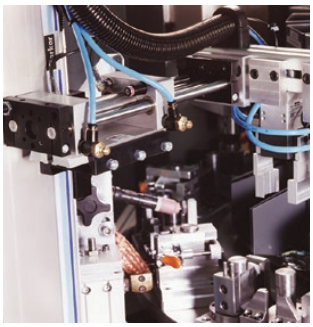



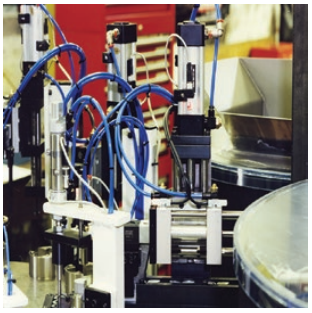



Parker Moduflex Valve System

Catalogue PDE2536TCUK



Parker

ENGINEERING YOUR SUCCESS.

WARNING

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Moduflex Valve Range Global Overview 51

Moduflex Valve System

The Moduflex Valve System redefines flexibility for pneumatic users. Whether configured from basic components or ordered as a pre-assembled and tested valve island, Moduflex flexibility is unmatched in the market place.



V Series



Multi wiring

V Series



Industrial Ethernet & IO-Link

T Series



Lockable Connector IP67



Clip Connector IP40

S Series



Lockable Connector IP67



Clip Connector IP40

P Series



Innovative

The 6 patents awarded to the Moduflex Valve System reflect that innovation is core to the Parker design process. Maintaining a clear understanding of our customer's expectations has defined the individuality of the Moduflex, and clearly differentiated it as a leading automation solution.

Adaptive

No other system can be adapted so simply once specified. Unique, captive fitting release system, quick release electrical connectors and single mechanical screw connection between manifolds offer the ultimate capability for late system design changes.

Multi-Functional

From stand-alone valves to communicant ready valve islands, from cylinder flow controls to vacuum generators with integrated blow-off, the Moduflex Valve System meets the requirements of the whole automation spectrum.

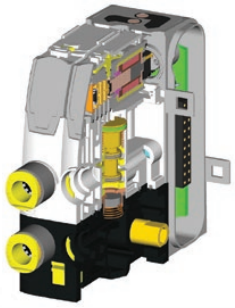
Light-weight

A communicant valve manifold with 8 pneumatic outputs weighs a mere 800grams, making the Moduflex Valve System the perfect choice for end of arm tooling application.

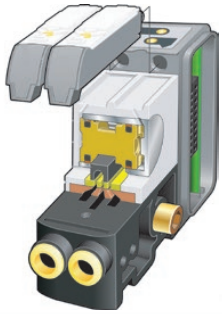
Moduflex Valve technology

Two technology platforms enable the compact design and high performance of the Moduflex Valve System.
The compact dual 4/2 and 3/2 valves utilise well proven Parker seal technology. The standard 4/2 valves adopt the long life super durable ceramic switching technology.

Dual 4/2 valve

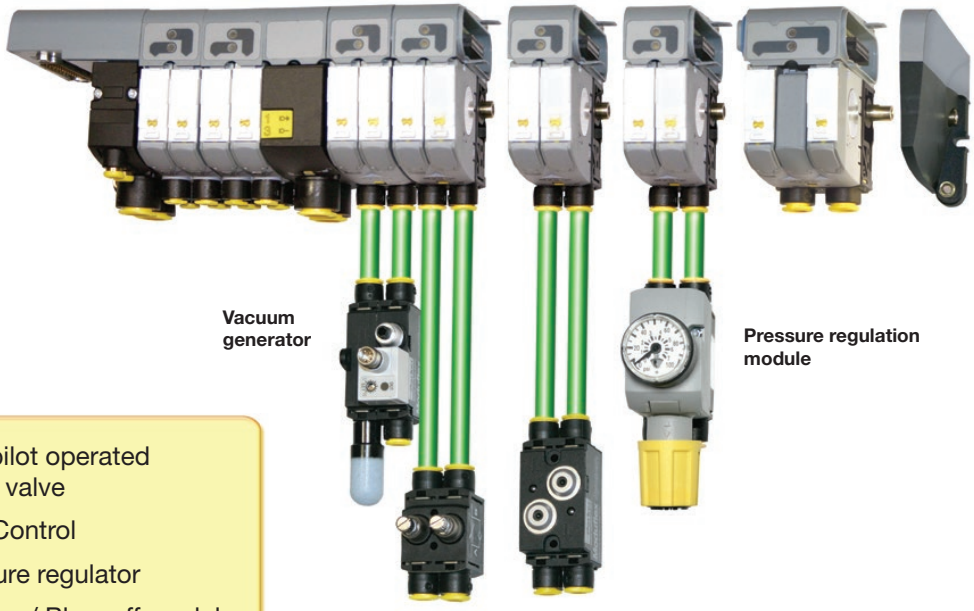


4/2 Valve



Moduflex Complete Control

With the introduction of the dual 4/2 size 1 valves, Moduflex now offers unrivalled ability of matching valves to exact flow requirements, ensuring cost and space are minimised.
In addition, Moduflex Valve System offers all the necessary control peripherals to provide a complete automation solution. Moduflex is the complete control package.



- Dual pilot operated check valve
- Flow Control
- Pressure regulator
- Vacuum / Blow off module.

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Moduflex Valve System - P2M

With high performance technology, Moduflex opens a new era in the field of electro-pneumatic automation. Valves are easily assembled into compact islands that conform to any application requirement.

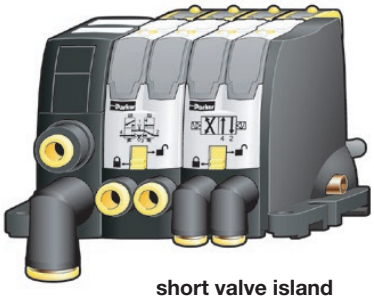
Adaptive pneumatic

With the Moduflex Valve design, pneumatic automation is now totally flexible.

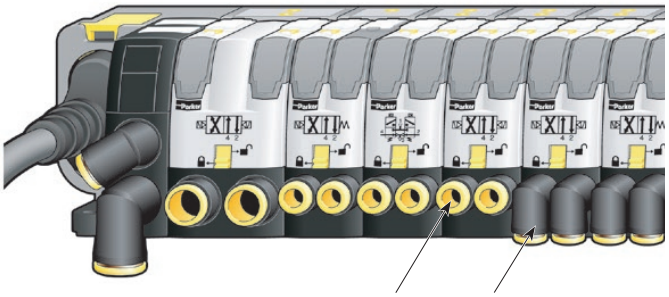
- Valves may be stand-alone or assembled into short or long islands, depending on application.
- IP 65-67 water and dust protection allows the valve to be installed near the cylinders for shorter response time and lower air consumption.
- The IP40 water and dust protection allows an optimised electrical connection for applications into cabinet or soft and none aggressive environments.
- Valve island electrical connections may be integrated.
- Push-in pneumatic connectors may be straight or elbow, for 4, 6, 8 or 10 mm OD tubes.
- A given island may incorporate different valve sizes in order to fulfill each cylinder flow requirement.
  A single island will accommodate all cylinders, up to 100 mm bore size.
- Island modifications are easy: add or remove a valve, change a valve function, change tubing size or change piloting in minutes.
- Manual overrides are also adaptive: locking for set up, non-locking for production.



stand-alone valve



short valve island

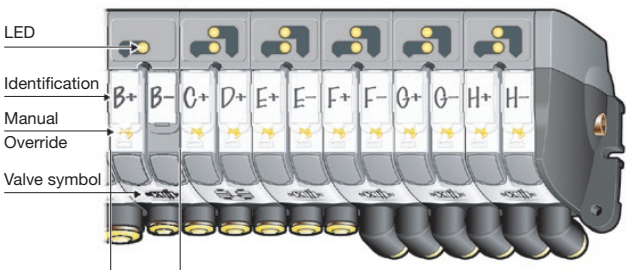


or long valve island

straight or elbow pneumatics connectors

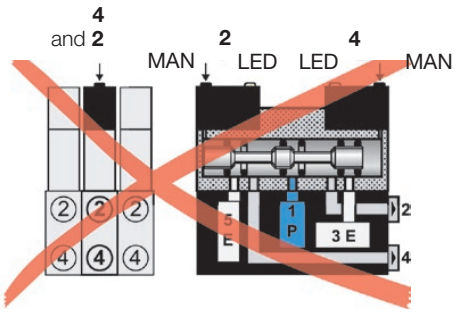
Easy man-machine dialog

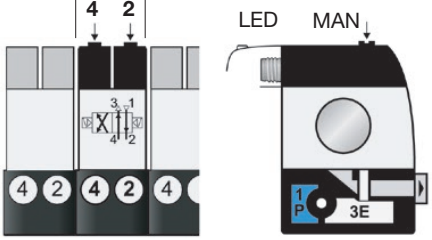
- Moduflex incorporates LED indicators, manual overrides (MAN), in conjunction with valve symbols and identification.
- As compared to traditional 5/2 valve islands, Moduflex offers a more user friendly dialogue: each marking, LED and MAN are all lined up with the corresponding cylinder output.



Island with traditional 5/2 spool valves:
Before any action, LED and MAN have to be carefully related to the corresponding output.

Man-machine dialogue is difficult.





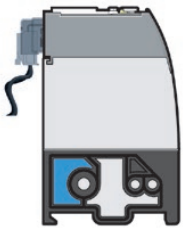
Island with Moduflex 4/2 slides valves:
Each marking, LED and MAN line up with the corresponding output.

Man-machine dialogue is easy.

Adaptive design

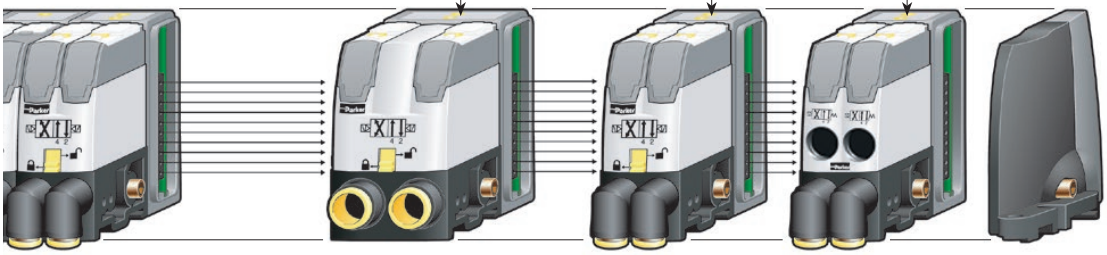
individual electrical connector
Lockable M8 Connector - IP67 **or** **Clip Connector - IP40**





or Valve Bank with integrated IP65 electrical connections

3 valves sizes in the same valve bank

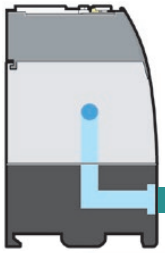


Size 2
All functions

Size 1
All functions

Size 01
Dual 4/2 Sgl Sol

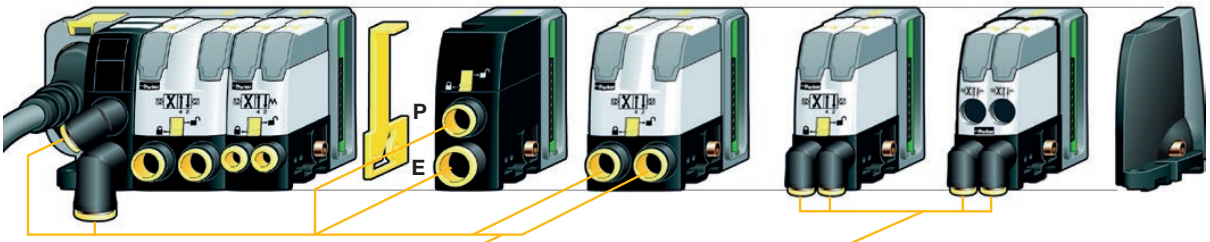
Flows and tube connections



Optimal nominal section for a full flow with appropriate fitting

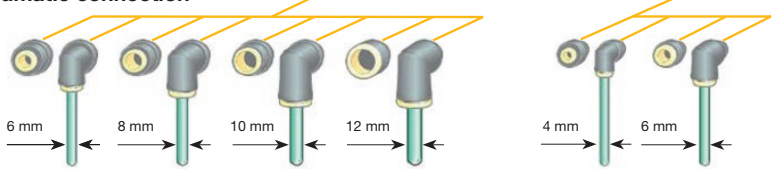
3 valve sizes lead to a global choice of tube sizes, thus covering all usual applications

	Size 2 Nominal section 40 mm²	Size 1 Nominal section 12 mm²	Size 01 Nominal section 4 mm²
	Qn 800 Nl/mn* Qmax 1340 Nl/mn* * For 3/2 functions Qn 450 Nl/mn Qmax 805 Nl/mn	Qn 310 Nl/mn* Qmax 510 Nl/mn* * For 3/2 functions Qn 235 Nl/mn Qmax 415 Nl/mn	Qn 165 Nl/mn* Qmax 275 Nl/mn*
Tube size to cylinder	**Ø Ext. 10 mm** / Ø Ext. 8 mm	**Ø Ext. 6 mm** / Ø Ext. 4 mm	**Ø Ext. 4 mm**
Cylinder bore size	Ø 63 to Ø 100 mm / Ø 40 to Ø 63 mm	Ø 25 to Ø 40 mm / Ø 6 to Ø 25 mm	Ø 6 to Ø 25 mm



Adaptive pneumatic connection

Valve outputs are equipped with clip-on push-in tube connectors with a choice of straight or elbow in different sizes



Typical cylinder speeds are shown on next pages. Module size, tube diameter and length, cylinder size, load and exhaust collection are taken into account.

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Cylinder working speed charts

The charts below give the cylinder working speeds at 6 bar, under different conditions:
- non loaded or 50 % loaded double acting cylinder;
- exhaust piped through 2 m. long tubing, or exhaust muffled.

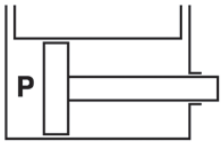
cylinder working speeds, in cm/s

standard conditions:

- double acting cylinder
- working pressure: P = 6 bar

specific conditions:

- exhaust piped through tube 2 m long, with next ID above ID tube from valve to cylinder.
- non loaded cylinder



valve module	tube ID	tube OD	tube length	Cylinder bore size 25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm
Size 1	2	4 mm	1 m.	43 cm/s	28 cm/s					
			3 m.	27	17					
	2.7	4 mm	1 m.	85	52	33 cm/s				
			3 m.	55	34	21				
	4	6 mm	1 m.	167	100	62	41 cm/s	27 cm/s		
			2 m.	157	86	54	37	23		
			4 m.	125	73	46	31	19		
			8 m.	94	57	36	24	14		
Size 2	5.5	8 mm	1 m.			146	102	67	40 cm/s	25 cm/s
			3 m.			122	84	54	32	20
	6	8 mm	1 m.				125	78	46	30
			3 m.				105	65	39	25
	7	10 mm	1 m.				135	88	53	33
			3 m.				120	77	47	30
	8	10 mm	1 m.					94	57	40
			3 m.					85	53	37

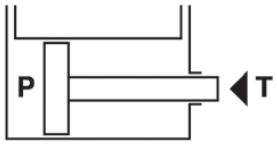
cylinder working speeds, in cm/s

standard conditions:

- double acting cylinder
- working pressure: P = 6 bar

specific conditions:

- exhaust piped through tube 2 m long, with next ID above ID tube from valve to cylinder.
- 50% loaded cylinder



valve module	tube ID	tube OD	tube length	Cylinder bore size 25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm
Size 1	2	4 mm	1 m.	32 cm/s	20 cm/s					
			3 m.	21	13					
	2.7	4 mm	1 m.	65	43	25 cm/s				
			3 m.	43	27	16				
	4	6 mm	1 m.	100	85	53	36 cm/s	22 cm/s		
			2 m.	93	75	44	30	19		
			4 m.	83	62	36	24	15		
			8 m.	68	46	27	18	11		
Size 2	5.5	8 mm	1 m.			83	67	44	27 cm/s	18 cm/s
			3 m.			79	54	35	21	15
	6	8 mm	1 m.				77	51	32	21
			3 m.				69	43	26	17
	7	10 mm	1 m.				88	59	37	24
			3 m.				81	51	30	21
	8	10 mm	1 m.					63	39	27
			3 m.					58	35	25

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Field of application :

- stand-alone valve modules **S** series
- valve island modules, **T** series and **V** series

Note : a complete machine cycle includes:
- the cylinder displacement times that can be deducted from the cylinder speeds given below
- the cylinders starting times that depend on the cylinder strokes and thus could not be included in the charts below.

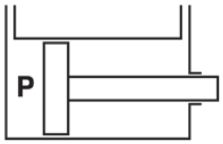
cylinder working speeds, in cm/s

standard conditions:

- double acting cylinder
- working pressure: P = 6 bar

specific conditions:

- muffled exhaust (non collected)
- non loaded cylinder



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			3 m.	27	17					
	2.7	4 mm	1 m.	88	54	34 cm/s				
			3 m.	55	34	22				
	4	6 mm	1 m.	170	98	62	42 cm/s	26 cm/s		
			2 m.	150	85	55	37	23		
			4 m.	125	70	45	31	19		
			8 m.	95	56	35	24	15		
Size 2	5.5	8 mm	1 m.			181	126	80	48 cm/s	30 cm/s
			3 m.			134	91	58	35	22
	6	8 mm	1 m.				139	89	54	34
			3 m.				112	70	43	27
	7	10 mm	1 m.				148	94	57	37
			3 m.				125	81	49	31
	8	10 mm	1 m.					102	60	42
			3 m.					90	55	38

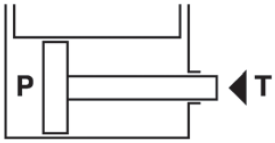
cylinder working speeds, in cm/s

standard conditions:

- double acting cylinder
- working pressure: P = 6 bar

specific conditions:

- muffled exhaust (non collected)
- 50% loaded cylinder



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Size 1	2	4 mm	1 m.	35 cm/s	22 cm/s					
			3 m.	23	14					
	2.7	4 mm	1 m.	67	44	27 cm/s				
			3 m.	44	28	17				
	4	6 mm	1 m.	100	87	56	38 cm/s	23 cm/s		
			2 m.	93	77	46	31	19		
			4 m.	83	63	37	25	16		
			8 m.	69	46	28	18	12		
Size 2	5.5	8 mm	1 m.			102	85	54	33 cm/s	22 cm/s
			3 m.			87	61	40	24	16
	6	8 mm	1 m.				91	59	37	25
			3 m.				77	46	29	19
	7	10 mm	1 m.				98	63	40	26
			3 m.				87	54	33	22
	8	10 mm	1 m.					68	43	30
			3 m.					61	38	27

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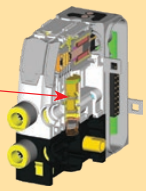
Moduflex Valve System - P2M

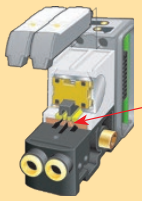
Two technology platforms

The well proven Parker seal technology

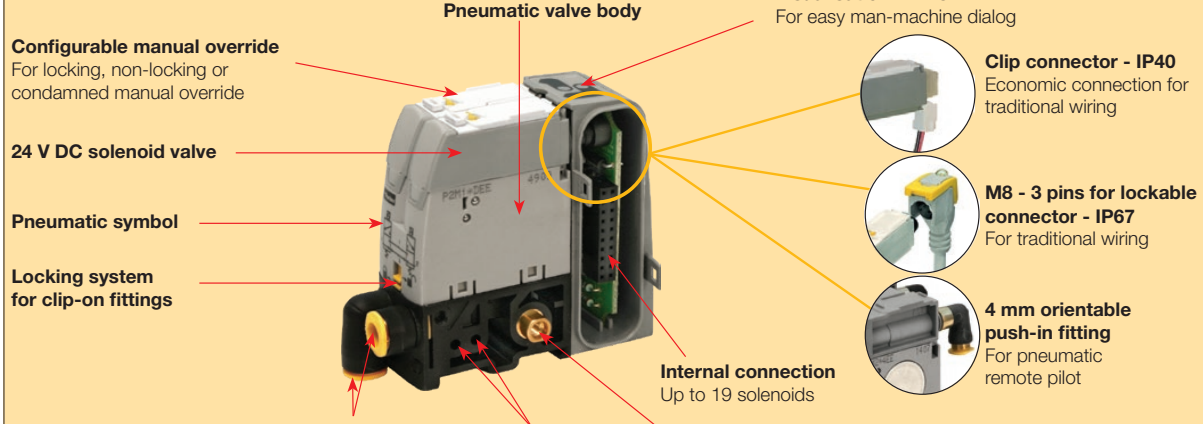
WCS Wear Compensating System

For 3/2 and dual 4/2 functions





Ceramic switching technology
For single 4/2 functions



Material Specification

Plastics:	Polyamide reinforced fibreglass
Screws:	Zinc plated steel
Seals:	Nitrile rubber
Valve mechanism:	Aluminium alloy
Plate:	Ceramic

Certification

EMC / CE mark:	According to EN 61 000-6-2
Dust & water protection:	According to EN 60529 - NEMA 4
- S & T series:	M8 connector: IP67 Clip connector: IP40
- V series:	IP65*

* For 25 Pins D-Sub connection: IP40 or IP65 depending on the cable

Moduflex specifications answer most industries automation requirements.
Applications run from clean room electronic manufacturing to process industries in aggressive environments.

Pneumatic specifications

General Specification

Fluid		Air or Inert gas, Filtered 40µ (class 5 according to ISO 8573-1) Dry (class 4 according to ISO 8573-1) or Lubricated (with lubricated air, we recommend external pilot supply with non lubricated air)
Operating Pressure		-0,9 to 8,0 bar
Piloting Pressure for operating pressures below, use external pilot by configuring the head module accordingly (function available on standard head module)	3/2 N.C. or N.O.	3,5 to 8,0 bar
	4/2 single solenoid	3,0 to 8,0 bar
	4/2 double solenoid	3,0 to 8,0 bar
Pilot supply	S Series	Internal
	T & V Series	Mixed internal/external (configurable on the standard head module)
Exhaust collection		All collectable (including pilot solenoid valve exhaust)
Life cycle (all sizes)	3/2 N.C. or N.O.	60 million operations (with dry air, 2 Hz, 20°C, 6 bar)
	Single and Dual 4/2	100 million operations (with dry air, 2 Hz, 20°C, 6 bar)
Operating temperatures	Clip connector	-15°C to 60°C
	Lockable connector	
	Multiwiring connector	
	Industrial Communication	0°C to 55°C
Stocking temperatures		-40°C to 70°C
Vibration resistance		2G - From 2 to 150 Hz (According to IEC 68 - 2 - 6)
Impact resistance		15G - 11 ms (According to IEC 68 - 2 - 27)

Flow specifications		**Dual 4/2**	**Dual 3/2**	**Single 3/2**	**Single 4/2**
Size 1	Q max. (Nl/mn)	275	415	415	510
	Qn (Nl/mn)	165	235	235	310
Size 2	Q max. (Nl/mn)	-	805	805	1340
	Qn (Nl/mn)	-	450	440	800

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Electrical specifications

Pilot solenoid Specifications				
	**Electric Connector**		M8	Clip connector
	Rated Voltage		24 Vdc	
	Electric Connection		Not polarized	Polarized
	Allowable voltage fluctuation		-15% to +10% (at 20°C)	+/- 10% (at 20°C)
	Coil insulation type		Class B	Class F
	Power consumption		Without lockable connector: 1W	1W
			With lockable connector: 1,2W	
	Visualisation and surge protection		Included into lockable connector	Included on pilot solenoid
	Manual override		Configurable: Locking or non-locking, isolated if required	
	Response Time of the complete valve (with connector)	3/2 N.C. or N.O.	Actuating: 10 ms Return: 15 ms	
		4/2 single solenoid		
		4/2 double solenoid	10 ms	
	Duty factor		ED 100%	
	Dust and Water protection	S & T Series	IP67 (with lockable connector)	IP40 (with clip connector)
		V Series	Guillotine connector: IP65 25 Pin D-SUB: IP40 or IP65 (depending on female connector) P2M Node: IP65 P2M Lite Node: IP20	

Communication module specifications

Ethernet Protocols			**Profinet IO**	**EtherNet/IP**	**Modbus/TCP**	**EtherCAT**	**PowerLink**	**CC-Link IE**
	P2M Node		✓	✓	✓	✓	✓	✓
	P2M Lite Node		✓	✓		✓		
	Ethernet specifications		According to protocol specifications					
	Speed communication		10/100 Mb - Half / Full duplex					1 Gb
	Service Web Page		YES			N/A		
	Logic power supply		24 Vdc - According to protocol specifications					
	Topology (Internal 2 port switch)		Line / Ring			Line		
	Valves power	Voltage	20,4 Vdc to 26,4 Vdc					
		OSSD compability	P2M Node: Test Pulsed supported P2M Lite Node: Test Pulsed not supported					
		Galvanic isolation	P2M Node: 2,5 kV (Logic and Auxiliary power) P2M Lite Node: Common power for both Logic & Valves					
	Max. current limit	Total	P2M Node: 4 A P2M Lite Node: 2 A					
		Per channel	150 mA					
		Protection	Polarity inversion, short circuit and Over Temperature					

IO-Link			**Standard Version**	**-SPC Version**
	IO-Link specifications		According to IO-Link V1.1.2	
	Speed communication		Com2 - 38 kBd	
	Logic power supply		Module powered by IO-Link master according to IO-Link V1.1.2	
	Aux. power	Voltage	20,4 Vdc to 26,4 Vdc	
		OSSD compability	No	Yes (Test Pulsed supported)
		Galvanic isolation	Yes	
	Max. current limit	Total	4A	2A
		Per channel	150 mA	
		Protection	Polarity inversion & short circuit	

All Protocols		
	EMC/CE mark	According to EN 61000-6-2 & EN 50081-2

Technical characteristics

Vacuum module

Fluid
Compressed air or inert gas, filtered 40µ mini., not lubricated

Working pressure
1 to 8 bar

Working temperature
-15°C to +60°C

Materials

Body:	Polyamide 6,6 reinforced fibreglass
Poppet:	Nitrile
Nozzle:	Brass
Clip connector:	Treated steel

Pressure sensor

Fluid
Air or inert gas, filtered 40µ mini., not lubricated

Working temperature
0°C to +50°C

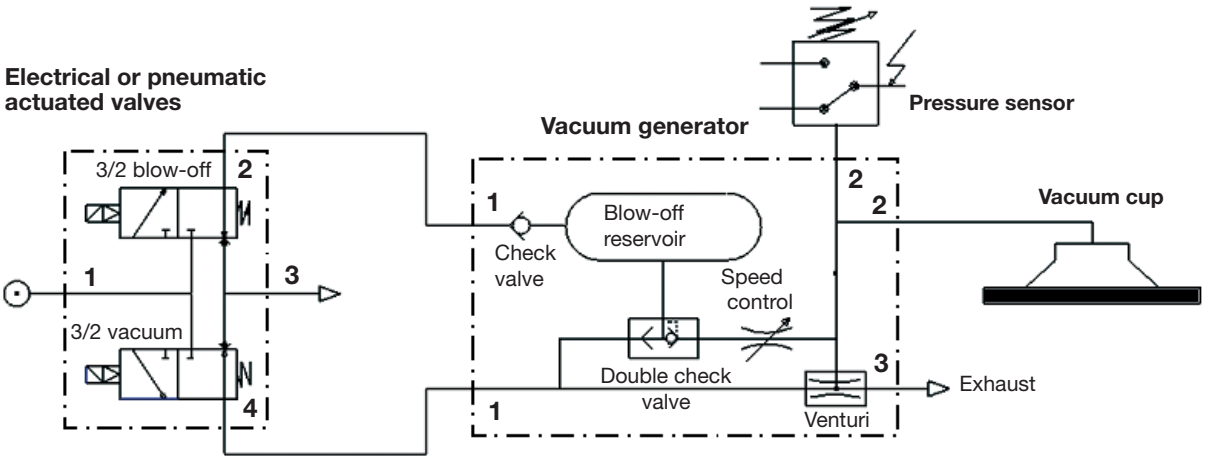
Supply
10,8 to 30 V DC

Digital output
PNP 125 mA

Materials

Body:	Polycarbonate

Connection drawing



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Specific characteristics

Maximum vacuum
Vacuum level: 90% at 6,5 bar

Air consumption
Consumption: 46 Nl/min at 5 bar

Vacuum flow
Flow: 25Nl/min at 0 % vacuum and 6,5 bar

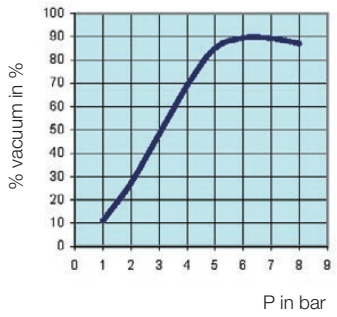
Evacuation time in s/l to reach different vacuum levels % (at P = 6,5 bar)

Vacuum %	0	10	20	30	40	50	60	70	80	90
Time in s	0,0 / 0,0	0,3 / 0,3	0,4 / 0,5	0,8 / 0,9	1,4 / 1,5	2,0 / 2,2	2,7 / 3,2	3,7 / 4,9	5,9 / 9,8	10,7 / -
Flow in Nl/min	24,9 / 23,2	22,1 / 20,3	19,3 / 17,3	16,6 / 14,4	13,8 / 11,5	11,0 / 8,5	8,2 / 5,6	5,5 / 2,7	2,7 / 0,0	0,0 / -

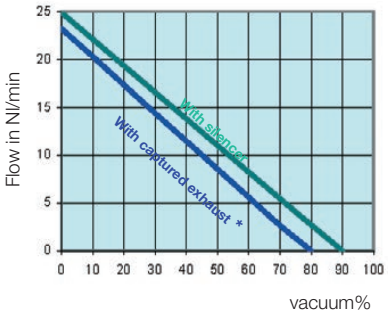
With silencer / With captured exhaust *

Performances

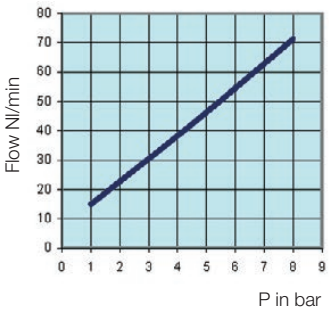
Vacuum level



Vacuum flow



Air consumption



* 1 m exhaust - tube Ø6 mm
3 m exhaust - tube Ø8 mm

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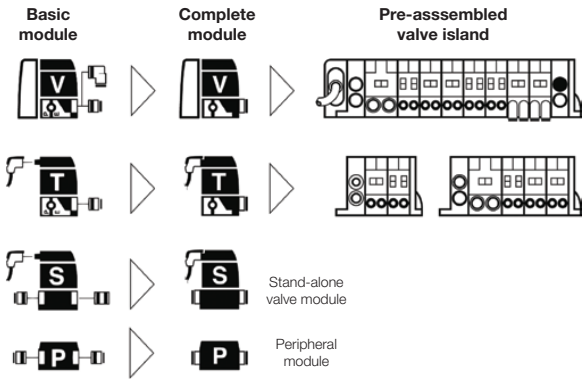
Operating information

Working pressure	-0,9 to 8 bar
Pilot pressure	3 to 8 bar *
Working temperature	-15 °C to 60 °C
Protection individual M8 connectors	IP 67 NEMA4
Protection individual clip connector	IP40
Protection integrated connectors	IP 65
Voltage	24 V DC
* Single and double 3/2	3,5 to 8 bar

		Dual 4/2	Dual 3/2	3/2	4/2
Size 1	Qmax.	275 l/min	415 l/min	415 l/min	510 l/min
	Qn	165 l/min	235 l/min	235 l/min	310 l/min
Size 2	Qmax.	-	805 l/min	805 l/min	1340 l/min
	Qn	-	450 l/min	440 l/min	800 l/min

Total ordering flexibillity

In addition to the complete product adaptability, the Moduflex valve range offers ordering flexibility for V, T, S and P series with 3 different designs; from all components separately ordered (basic module) to pre-assembled and tested valve island.



Ordering options

1 - Basic modules ordering

Using this option, all basic components are separately ordered :

- Head and Tail set
- Valve modules
- Intermediate module kit
- Peripheral modules
- Pneumatic connectors, mufflers and plugs
- Electrical connection or fieldbus module

The complete bill of material needed for the valve island assembly can be easily details using page 1 of the Moduflex Valve Configurator software report.

2 - Complete modules ordering

Using this option, modules are defined, ordered and supplied, pneumatic connectors and electrical connection equiped. One part number defines:

- Function module
- Pneumatic connectors, muffler and plugs
- Electrical connection and cable

For an entire valve island configuration, the list of complete modules can be easily details using page 3 of the Moduflex Valve Configurator software report.

3 - Pre-assembled valve islands ordering

Using this option, the complete valves island configuration has to be defined, and may be ordered, delivered fully assembly and tested under one part number.

The Moduflex Valve in-line e-Configurator software is an easy way for a clear definition of the requested valve island configuration.

Moduflex Valve System - P2M

V series

Integrated connection field bus or multi-connector valve island

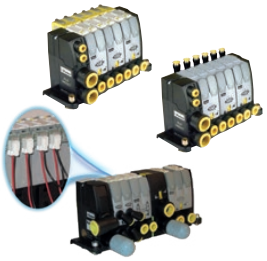




Pages 16-21

T series

Individual connector valve islands
Solenoid clip or lockable connector or remote air pilot





Pages 22-23

S series

Stand alone valves
Solenoid clip or lockable connector or remote air pilot





Pages 24-25

P series

Peripheral modules
Flow control, check valves, pressure regulator, vacuum





Pages 26-27





Pages 28-29

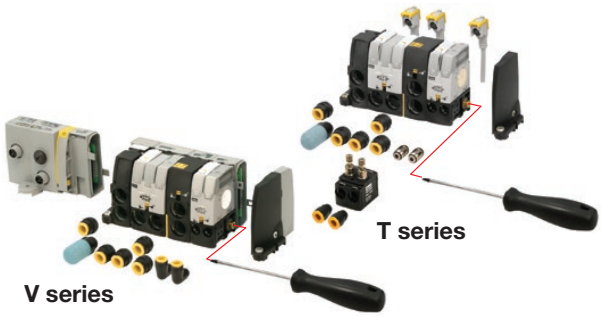


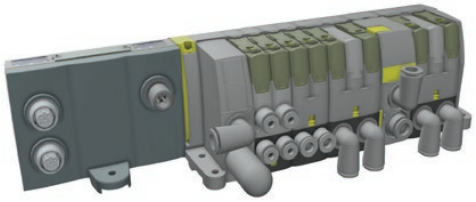
Page 30



Page 31

Moduflex Valve in-line e-Configurator





http://www.parker.com/pde/P2M

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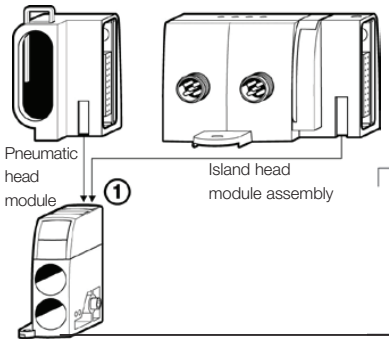
Integrated connections valve islands: V series

In a V series Moduflex valve island, electrical controls are all received by the head module and transmitted to the concerned valve modules through the modular integrated circuit.

The head node may either be a cable multi-connector or a Fieldbus communication node: the next pages show multi-connector cable and a complete choice of bus protocols.

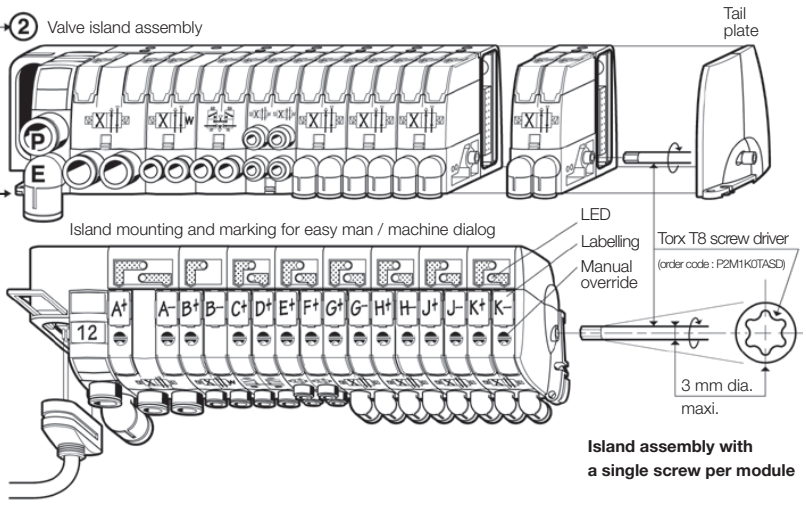


Valve island electrical head module:
multi-connector or communication nodes



Valve island configuration

The following page shows all valve sizes and functions that may enter into a V series valve island and, for each valve size, a choice of clip-on pneumatic connectors: tubing size, straight, elbow etc.
To receive its pressure supply and collect its exhaust, the island also requires a pneumatic head and tail module set and sometimes an intermediate module set with 4 configuration plates for different functions.
To receive its electrical controls, the island is completed by an electrical head module, either a multi-connector or by a communication node to be chosen from the next pages.



Island assembly with a single screw per module

Valve island assembly

The above illustration presents:
- **Step** ① : the electrical head module is engaged into the pneumatic head module ;
- **Step** ②: valve modules are one by one screwed onto each other starting from the head module. For this task, the single integrated screw is tightened with a torx T8 standard screwdriver.

The pneumatic connectors may be clipped or unclipped at any stage.

With a LED, a manual override and a labelling for each valve pilot (see illustration), the island front face eases the "man / machine" dialogue.

The resulting valve island length is expressed by the drawing below, while further size details and mountings are presented on the dimensions pages.

Modules and island ordering

Choice between 3 approaches:

1 - Basic modules ordering:
The following page shows these modules supplied without connector, together with the choice of clip-on connectors separately supplied (10 units packs). This approach gives the maximum flexibility.

2 - Complete modules ordering:
Page 31 shows the ordering chart for modules supplied with their connectors.

3 - Assembled island ordering:
An In-Line configurator, available from the product web-page "http://www.parker.com/pde/P2M", allows to specify a valve island that may be delivered assembled.

Communication node:
- Ethernet nodes, width: 126 mm
- IO-LInk, width: 94 mm

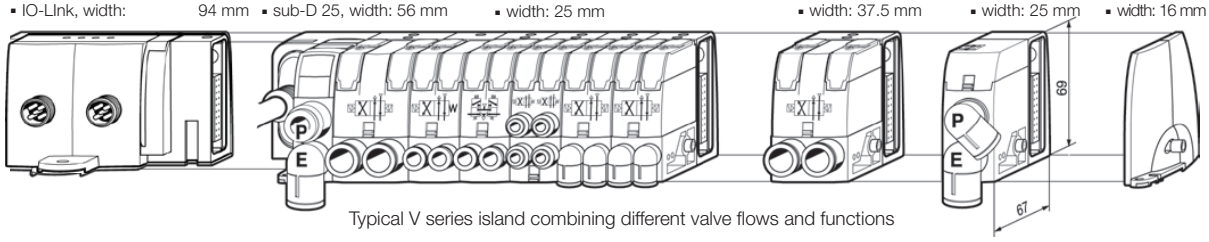
Multi-connector head module:
- guillotine, width: 47 mm
- sub-D 25, width: 56 mm

Valve modules size 1:
- width: 25 mm

Valve module size 2:
- width: 37.5 mm

Intermediate module:
- width: 25 mm

Tail plate:
- width: 16 mm



Typical V series island combining different valve flows and functions

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Basic modules (without connector)

Valve Modules				Size 1		Size 2
Size 1	Symbol	Description	Weight [g]	Order code	Weight [g]	Order code
		4/2 Solenoid spring	94	**P2M1V4ES2CV**	100	**P2M2V4ES2CV**
		4/2 Double solenoid	103	**P2M1V4EE2CV**	110	**P2M2V4EE2CV**
		2 x 3/2 NC + NC with exhaust check valves	106	**P2M1VDEE2CV**	115	**P2M2VDEE2CV**
		2 x 3/2 NO + NO with exhaust check valves	106	**P2M1VCEE2CV**	115	**P2M2VCEE2CV**
		2 x 3/2 NC + NO with exhaust check valves	106	**P2M1VEEE2CV**	115	**P2M2VEEE2CV**
		2 x 4/2 Solenoid spring with exhaust check valves	114	**P2M1VJEE2CV**		
		3/2 NC with exhaust check valves	102	**P2M1V3ES2CV**	110	**P2M2V3ES2CV**
		4/3 Centre exhaust 2 x 3/2 NC + NC without exhaust check valves	106	**P2M1VGEE2CV**		**P2M2VGEE2CV**

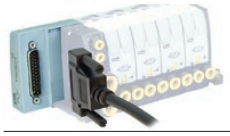
Island head and intermediate module sets

Valve Modules			Size 2	
	Description		Weight [g]	Order code
 P2M2HXT01  P2M2BXV0A	Valve island pneumatic head and tail module set		64	**P2M2HXT01**
	Valve island intermediate supply module with a set of 4 configuration plates		68	**P2M2BXV0A**

Clip-On pneumatic connectors *

Valve Modules			Size 1		Size 2	
	Description	Tube OD	Weight [g]	Order code	Weight [g]	Order code
	Straight connector	G1/8“	2	**FMDG1-1**		
			2	**FMD04-1**		
			3	**FMD06-1**		
					3	**FMD06-2**
					4	**FMD08-2**
					5	**FMD10-2**
					6	**FMD12-2**
	Elbow connector	G1/8»	3	**CMDG1-1**		
			3	**CMD04-1**		
			5	**CMD06-1**		
					5	**CMD06-2**
					6	**CMD08-2**
					7	**CMD10-2**
					8	**CMD12-2**
	Silencer				5	**MMDVA2**
* Fittings and plugs pack quantity: 10	Plug				5	**PMDXX2**

V series valve island: Electrical multi-connector head module

	Description		Protection	Cable length	Weight [g]	Order code
	**Guillotine type**	Multi-connection head module			38	**P2M2HEV0A**
		Guillotine connector with flying leads multi-cable	IP65	2 m	335	**P8LMH20M2A**
				5 m	802	**P8LMH20M5A**
				9 m	1425	**P8LMH20M9A**
	**Standard Sub-D 25 type**	Multi-connection head module			60	**P2M2HEV0D**
		Sub-D 25 connector with flying leads multi-cable	IP40	3 m	435	**P8LMH25M3A**
				9 m	1425	**P8LMH25M9A**
			IP65	9 m	1425	**P8LMH25B9A**

Valve Island V Series with IO-Link connection

The P2M Moduflex IO-**Link** 24 DO node allows a very simple and cost efficient connection to any IO-Link master, centralised into the PLC or decentralised through an industrial Ethernet network.

Designed in both Class A and Class B versions with an isolated auxiliary power, it can easily be adapted to all power supply architectures and follow machine directives



P2M IO-link 24 DO Class A node with independent Auxiliary Power Supply



The P2M IO-**Link** 24 DO Class A node can handle a Moduflex Valve bank having up to 19 pilot solenoid valves.

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

The P2M IO-**Link** 24 DO Class A node exists in 3 versions with the Auxiliary Power M12 connector pin out adapted to any sourcing through a standard M12 cable:

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

P2M IO-link 24 DO Class B node



The P2M IO-**Link** 24 DO Class B node can handle a Moduflex Valve bank having up to 19 pilot solenoid valves.

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

Diagnostic



The P2M IO-**Link** 24 DO node offers a local diagnostic through 4 LED's located on the visible top side, showing:

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

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

Safe Power Capable version (-SPC)

Auxiliary power of -SPC version of P2M IO-Link 24 DO node can be supplied from a safe output device following machinery directives. This includes:
- Output Signal Switch Device (OSSD) test pulse compatible
- Galvanic isolation between 0 Vdc Logic and Aux power
- PP or PM cabling modes

For more details, refer to the "Communication nodes – connection and configuration" section.

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V series valve island: Communication node for IO-Link

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





Description	IO-Link Class	M12 A codded Connector connection IO-Link	Aux. Power	Aux. Power Pinout	Weight (g)	**Order code**
P2M IO-Link Communication Node	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**
P2M IO-Link Communication Node **Safe Power Capable**	Class A	3 Pin's	3 Pin's	1 & 3	165	**P2M2HBVL12400A13-SPC**
		3 Pin's	3 Pin's	4 & 3	165	**P2M2HBVL12400A43-SPC**
		3 Pin's	5 Pin's	4 & 2	165	**P2M2HBVL12400A42-SPC**
	Class B	5 Pin's		2 & 5	145	**P2M2HBVL12400B25-SPC**

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

Accessories



Description	Connector type	Weight (g)	**Order code**
Quick connect straight connector for both IO-Link communication and auxiliary power supply	M12 - 5 Pin's Female - A Coding	25	**P8CS1205AA**

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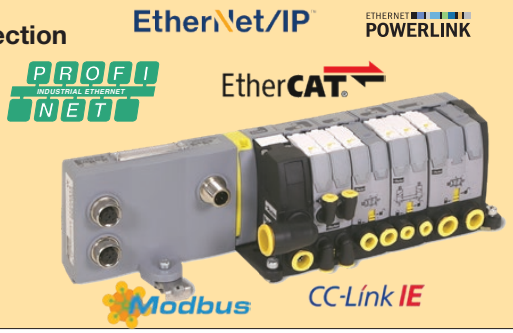
Valve Island V Series with Industrial Ethernet connection

The P2M Industrial Ethernet 24 DO node allows a very simple and cost efficient connection to the most popular Industrial Ethernet networks.

Designed with an isolated auxiliary power, it can easily be adapted to all power supply architectures and follow machine directives.



Product Set-Up





The P2M Industrial Ethernet 24 DO node offers an IP addressing through 3 rotary switches located on the top side.

The 3 rotary switches allow also a Factory Reset, IP address storage, and DHCP mode addressing.

As soon as supported by protocol, this IP address can be modified through an imbedded web page.

For an application requiring a regular disconnection / reconnection of the node, Profinet and EtherNet/IP protocols allow respectively a Fast Start-Up (FSU) and Quick Connect mode. This mode can be enable or disable .

Technology / Integrated Ethernet Switch



The P2M Industrial Ethernet 24 DO node offers 2 Ethernet ports allowing a line topology without external switch. The Ring topology can also be supported (enable/disable) for Profinet, EtherNet/IP and Modbus TCP/IP.

The integrated Ethernet switch support Class C Services allowing used in an isochronous real time (IRT) structure.

Diagnostic





The P2M Industrial Ethernet 24 DO node offers a local diagnostic through 7 LED's located on the visible top side, showing:

- Logic status
- Ethernet activity on both ports
- Standard Status due to protocol
- Output error / Auxiliary power

This local information as well as trouble shooting and predictive maintenance diagnostics (Power monitoring, Life cycle counting, …) are available in PLC through the network and reported on imbedded web page.

When PLC is in "STOP", the web page allows to force ON/OFF solenoids state. This function has a password protection.

Safe Power Capable

Auxiliary power of P2M Industrial Ethernet 24 DO node can be supplied from a safe output device following machinery directives. This includes:

- Output Signal Switch Device (OSSD) test pulse compatible
- Galvanic isolation between 0 Vdc Logic and Aux power
- PP or PM cabling modes

For more details, refer to the "Communication nodes – connection and configuration" section.

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V series valve island: Communication node for Industrial Ethernet

Industrial Ethernet node for 19 outputs (Moduflex Pilot Valves)
(The last 5 outputs of this 24 DO node can't be used with Moduflex Valve)



Description	Protocol	Eth. ports	Aux. Power	Weight (g)	Order code
P2M ndustrial Ethernet Communication Node	Profinet IO	2 x M12 D-coded	M12 A-codded	190	**P2M2HBVN12400**
	EtherNet/IP	2 x M12 D-coded	M12 A-codded	190	**P2M2HBVE12400**
	EtherCAT	2 x M12 D-coded	M12 A-codded	190	**P2M2HBVT12400**
	PowerLink	2 x M12 D-coded	M12 A-codded	190	**P2M2HBVW12400**
	Modbus /TCP	2 x M12 D-coded	M12 A-codded	190	**P2M2HBVM12400**
	CC-Link IE	2 x M12 X-coded	M12 A-codded	190	**P2M2HBVK12400***

*) Coming soon
Configuration file can be download from the dedicated product web page:
www.parker.com/pde/P2M_IE

Accessories



Description	Connector type	Weight (g)	Order code
Quick connect straight connector for module power supply	M12 - 5 Pin's Female - A Coding	25	**P8CS1205AA**

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Valve Island V Series with Industrial Ethernet connection

The P2M Industrial Ethernet Lite node 24DO allows a very simple and cost efficient connection to the most popular Industrial Ethernet networks.

In its compact IP40 version equiped with two RJ45 Ethernet ports, it saves size in cabinet applications and offers an easy connection to the network in a line topology.



Product Set-Up



The P2M Lite Node 24DO is by default in DHCP mode. The module must be assigned to a static IP-Address in order be controlled via the network.

The Network Configuration settings can be done throuhg the embedded web server of the node as well as “IPconfig”, “TIA Portal” or similar methods.

For an application requiring a regular disconnection / reconnection of the node, Profinet and EtherNet/IP protocols allow respectively a Fast Start-Up (FSU) and Quick Connect mode. This mode can be enable or disable .

Technology / Integrated Ethernet Switch



The P2M Industrial Ethernet Lite node 24DO offers 2 RJ45 ports allowing a line topology without external switch. The Ring topology can also be supported (enable/disable) for Profinet and EtherNet/IP.

The integrated Ethernet switch support Class C Services allowing used in an isochronous real time (IRT) structure.

Diagnostic



The P2M Industrial Ethernet Lite node 24DO offers a local diagnostic through 5 LED’s located on the visible top side and 4 additionals on both Ethernet connectors showing:

- Logic status
- Ethernet activity on both ports
- Standard Status due to protocol
- Output error / Power Supply

This local information as well as trouble shooting and predictive maintenance diagnostics (Power monitoring, Life cycle counting, …) are available in PLC through the network and reported on imbedded web page.

When PLC is in "STOP", the web page allows to force ON/OFF solenoids state. This function has a password protection.

V series valve island: Communication node for Industrial Ethernet

P2M Lite Industrial Ethernet node for 19 outputs (Moduflex Pilot Valves)
(The last 5 outputs of this 24 DO node can't be used with Moduflex Valve)



Description	Protocol	Eth. ports	Power	Weight (g)	Order code
P2M Industrial Ethernet Communication Node	Profinet IO	2 x RJ45	3 PIN's male*	190	**P2M2HBVN12400RJ**
	EtherNet/IP	2 x RJ45	3 PIN's male*	190	**P2M2HBVE12400RJ**
	EtherCAT	2 x RJ45	3 PIN's male*	190	**P2M2HBVT12400RJ**

*) Female 3,81 mm pitch connector included
Configuration file can be download from the dedicated product web page:
www.parker.com/pde/P2M_IE

Individual connection valve islands: T series

In a T series valve island, electrical controls are individually connected to each valve module, onto its solenoid pilot.

As an alternative, air pilot valve modules are also available, to be controlled by individual pneumatic signals.

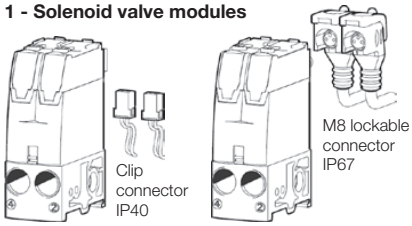


Valve island assembly

As shown by the above illustration, the valve modules are one by one screwed onto each other, starting from the head module. For this task, the single integrated screw is tightened with a torx T8 standard screwdriver.
The pneumatic connectors may be clipped or unclipped at any stage.
With a LED, a manual override and a labelling for each valve pilot (see above illustration), the island front face eases the "man / machine" dialogue.
The resulting valve island length is expressed by the drawing below, while further size details and mountings are presented on dimensions pages.

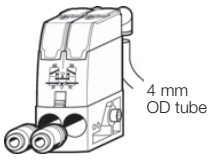
Valve pilot connections

1 - Solenoid valve modules



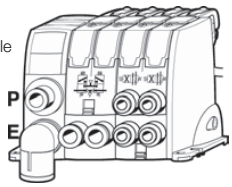
In its IP40 version, each solenoid shows Clip connection integrating LED and voltage surge protection. The clip connector with flying leads may be ordered separately with independent or interconnected common.
In its IP67 version, each solenoid shows a M8 connection. Lockable connectors, IP67 protected, with LED voltage surge protection and flying lead cable may be ordered for the required length.

2 - Air pilot valve modules



No connector has to be ordered: each pneumatic pilot port includes its integrated movable elbow 4 mm OD tube push-in connector.

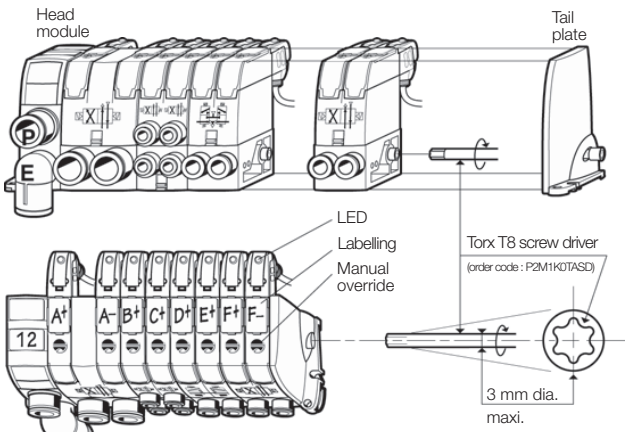
Typical T series short island for single or double acting small cylinders.



Valve island configuration

The following page presents all valve sizes and functions that may enter into a T series valve island and, for each valve size, a choice of clip-on pneumatic connectors: tubing size, straight, elbow etc."
To receive its pressure supply and collect its exhaust, the island also requires a pneumatic head and tail module set and sometimes an intermediate module set including 4 configuration plates for different functions. Valve modules may either be solenoid versions or air pilot versions. Mixing both versions into the same valve island is possible.

Valve island assembly



Island mounting and marking for easy man / machine dialog

Island assembly with a single screw per module

Modules and island ordering

Choice between 3 approaches:
1 - Basic modules ordering:
The following page shows these modules supplied without connector, together with the choice of clip-on connectors separately supplied (10 units packs). This approach gives the maximum flexibility.

2 - Complete modules ordering:
Page 27 shows the ordering chart for modules supplied with their connectors.
3 - Assembled island ordering:
Page 30 shows the valve island configurator CD-Rom to specify a valve island that may be delivered assembled.

Pneumatic head module:
▪ width: 32 mm

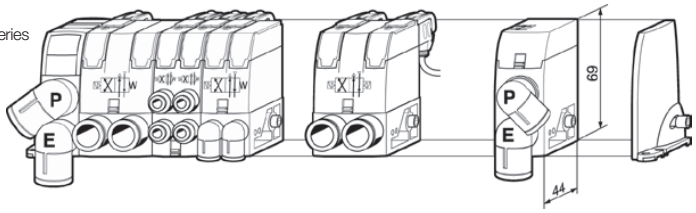
Valve module size 1:
▪ width: 25 mm

Valve module size 2:
▪ width: 37.5 mm

Intermediate module:
▪ width: 25 mm

Tail plate:
▪ width: 16 mm

Typical T series hight flow island for both small and large cylinders.



Typical T series islands combining different valve flows and functions

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Basic modules (without connector)

Valve Modules					Size 1		Size 2
Symbol	Description	Actuator	Pilot connector	W (g)	Order code	W (g)	Order code
 Size 1 Dual 4/2							
	4/2 Spring return	Solenoid	M8 Lockable	68	**P2M1T4ES2C**	74	**P2M2T4ES2C**
			Clip	68	**P2M1T4ES2CW**	74	**P2M2T4ES2CW**
		Air pilot		63	**P2M1T4PS**	69	**P2M2T4PS**
	4/2 Double pilot	Solenoid	M8 Lockable	77	**P2M1T4EE2C**	83	**P2M2T4EE2C**
			Clip	77	**P2M1T4EE2CW**	83	**P2M2T4EE2CW**
		Air pilot		67	**P2M1T4PP**	73	**P2M2T4PP**
 Size 1 	2 x 3/2 NC + NC with exhaust check valves	Solenoid	M8 Lockable	80	**P2M1TDEE2C**	94	**P2M2TDEE2C**
			Clip	80	**P2M1TDEE2CW**	94	**P2M2TDEE2CW**
		Air pilot		70	**P2M1TDPP**	84	**P2M2TDPP**
	2 x 3/2 NO + NO with exhaust check valves	Solenoid	M8 Lockable	80	**P2M1TCEE2C**	94	**P2M2TCEE2C**
			Clip	80	**P2M1TCEE2CW**	94	**P2M2TCEE2CW**
		Air pilot		70	**P2M1TCPP**	84	**P2M2TCPP**
	2 x 3/2 NC + NO with exhaust check valves	Solenoid	M8 Lockable	80	**P2M1TEEE2C**	94	**P2M2TEEE2C**
			Clip	80	**P2M1TEEE2CW**	94	**P2M2TEEE2CW**
		Air pilot		70	**P2M1TEPP**	84	**P2M2TEPP**
	2 x 4/2 Spring return with exhaust check valves	Solenoid	M8 Lockable	88	**P2M1TJEE2C**		
			Clip	88	**P2M1TJEE2CW**		
		Air pilot		78	**P2M1TJPP**		
	3/2 NC with exhaust check valves	Solenoid	M8 Lockable	76	**P2M1T3ES2C**	90	**P2M2T3ES2C**
			Clip	76	**P2M1T3ES2CW**	90	**P2M2T3ES2CW**
		Air pilot		71	**P2M1T3PS**	70	**P2M2T3PS**
	4/3 Centre exhaust 2 x 3/2 NC + NC without exhaust check valves	Solenoid	M8 Lockable	80	**P2M1TGEE2C**	94	**P2M2TGEE2C**
			Clip	80	**P2M1TGEE2CW**	94	**P2M2TGEE2CW**
		Air pilot		70	**P2M1TGPP**	84	**P2M2TGPP**
Size 2							

Island head and intermediate module sets

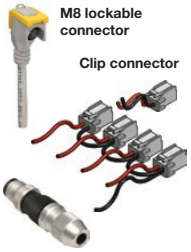
Valve Modules			
	Description	W (g)	Size 2 Order code
 P2M2HXT01	Valve island pneumatic head and tail module set	64	**P2M2HXT01**
 P2M2BXT0A	Valve island intermediate supply module with a set of 4 configuration plates	64	**P2M2BXT0A**

Clip-On pneumatic connectors *

Valve Modules				Size 1		Size 2
	Description	Tube OD	W (g)	Order code	W (g)	Order code
	Straight connector	G1/8"	2	**FMDG1-1**		
		4 mm	2	**FMD04-1**		
		6 mm	3	**FMD06-1**	3	**FMD06-2**
		8 mm			4	**FMD08-2**
		10 mm			5	**FMD10-2**
		12 mm			6	**FMD12-2**
	Elbow connector	G1/8"	3	**CMDG1-1**		
		4 mm	3	**CMD04-1**		
		6 mm	5	**CMD06-1**	5	**CMD06-2**
		8 mm			6	**CMD08-2**
		10 mm			7	**CMD10-2**
		12 mm			8	**CMD12-2**
	Silencer				5	**MMDVA2**
	Plug		3	**PMDXX1**	5	**PMDXX2**

* Fittings and plugs pack quantity: 10

Electrical connectors

	Description	Connector type	Cable length	W (g)	Order code
 M8 lockable connector Clip connector	Individual lockable connector – IP67 Including LED and surge protection 2 Flying leads	M8 / 2 x Flying leads	2 meters	62	**P8LS08L226C**
			5 meters	155	**P8LS08L526C**
			9 meters	180	**P8LS08L926C**
	Clip connector – IP40 Individual: Including 2 flying leads	1 x Clip connector	1 meter	8	**P8LW021C**
			2 meter	12	**P8LW022C**
	Multiple: Including 1 common (0 Vdc) and 1 flying lead per connector	2 x Clip connectors	1 meter	12	**P8LW021C02**
		4 x Clip connectors	1 meter	20	**P8LW021C04**
		8 x Clip connectors	1 meter	36	**P8LW021C08**
	Straight cable quick connect to thread connector, IP67 protected	M8		12	**P8CS0803J**
		M12		15	**P8CS1204J**

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Stand-Alone Valve Modules: S series

Very useful to control isolated cylinders, these stand-alone valves module are compact and easy to mount on the machines with neat electrical and pneumatic connections.

As an alternative to electrical controls, valves with air pilots are also available, to be controlled by individual pneumatic signals.

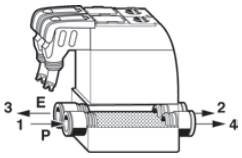


Valve functions

The following page shows all valve sizes and functions and, for each valve size, a choice of clip-on pneumatic connectors: tubing size, straight, elbow etc."

Valve main connections

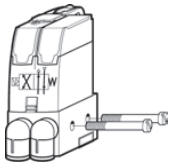
- Outlets to cylinders (ports 2 and 4) on one side.
- Supply P (port 1) and exhaust E (port 3) on the other side. At port 3, exhaust may be collected or receive a clip-on muffler.



Valve mounting

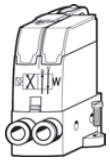
All valves may be mounted either with side screws or with their integrated retractable brackets.

Side screw mounting



The brackets are then retracted.

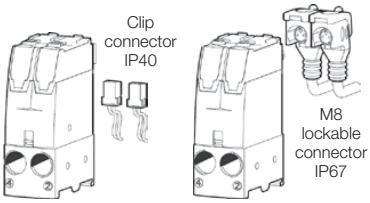
Optional foot mounting



The brackets are then extended.

Valve pilot connections

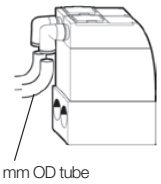
1- Solenoid valve modules



In its IP40 version, each solenoid shows Clip connection integrating LED and voltage surge protection. The clip connector with flying leads may be ordered separately with independent or interconnected common. In its IP67 version, each solenoid shows a M8 connection. Lockable connectors, IP67 protected, with LED voltage surge protection and flying lead cable may be ordered for the required length.

2- Air pilot valve modules

No connector has to be ordered : each pneumatic pilot port includes its integrated movable elbow 4 mm OD tube push-in connector.



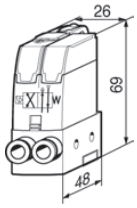
Modules and island ordering

Choice between 2 approaches:

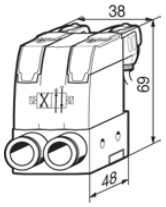
1 - Basic modules ordering:
The following page shows these modules supplied without connector, together with the choice of clip-on connectors separately supplied (10 units packs). This approach gives the maximum flexibility.

2 - Complete modules ordering:
Page 28 shows the ordering chart for modules supplied with their pneumatic and electrical connectors and muffler.

Valve module size 1



Valve module size 2



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Pneumatic Division - Europe

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Basic modules (without connector)

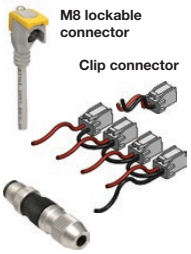
Valve Modules						Size 1		Size 2
	Symbol	Description	Actuator	Pilot connector	W (g)	Order code	W (g)	Order code
 Size 1		4/2 Spring return	Solenoid	M8 Lockable	72	**P2M1S4ES2C**	78	**P2M2S4ES2C**
				Clip	72	**P2M1S4ES2CW**	78	**P2M2S4ES2CW**
			Air pilot		67	**P2M1S4PS**	73	**P2M2S4PS**
		4/2 Double pilot	Solenoid	M8 Lockable	87	**P2M1S4EE2C**	93	**P2M2S4EE2C**
				Clip	87	**P2M1S4EE2CW**	93	**P2M2S4EE2CW**
			Air pilot		77	**P2M1S4PP**	73	**P2M2S4PP**
		2 x 3/2 NC + NC with exhaust check valves	Solenoid	M8 Lockable	85	**P2M1SDEE2C**	91	**P2M2SDEE2C**
				Clip	85	**P2M1SDEE2CW**	91	**P2M2SDEE2CW**
			Air pilot		75	**P2M1SDPP**	81	**P2M2SDPP**
		2 x 3/2 NO + NO with exhaust check valves	Solenoid	M8 Lockable	85	**P2M1SCEE2C**	91	**P2M2SCEE2C**
				Clip	85	**P2M1SCEE2CW**	91	**P2M2SCEE2CW**
			Air pilot		75	**P2M1SCPP**	81	**P2M2SCPP**
 Size 2		2 x 3/2 NC + NO with exhaust check valves	Solenoid	M8 Lockable	85	**P2M1SEEE2C**	91	**P2M2SEEE2C**
				Clip	85	**P2M1SEEE2CW**	91	**P2M2SEEE2CW**
			Air pilot		75	**P2M1SEPP**	81	**P2M2SEPP**
		3/2 NC with exhaust check valves	Solenoid	M8 Lockable	80	**P2M1S3ES2C**	86	**P2M2S3ES2C**
				Clip	80	**P2M1S3ES2CW**	86	**P2M2S3ES2CW**
			Air pilot		70	**P2M1S3PS**	76	**P2M2S3PS**
		4/3 Centre exhaust 2 x 3/2 NC + NC without exhaust check valves	Solenoid	M8 Lockable	85	**P2M1SGEE2C**	91	**P2M2SGEE2C**
				Clip	85	**P2M1SGEE2CW**	91	**P2M2SGEE2CW**
			Air pilot		75	**P2M1SGPP**	81	**P2M2SGPP**

Clip-On pneumatic connectors *

Valve Modules				Size 1		Size 2
	Description	Tube OD	W (g)	Order code	W (g)	Order code
	Straight connector	G1/8"	2	**FMDG1-1**		
		4 mm	2	**FMD04-1**		
		6 mm	3	**FMD06-1**	3	**FMD06-2**
		8 mm			4	**FMD08-2**
		10 mm			5	**FMD10-2**
		12 mm			6	**FMD12-2**
	Elbow connector	G1/8"	3	**CMDG1-1**		
		4 mm	3	**CMD04-1**		
		6 mm	5	**CMD06-1**	5	**CMD06-2**
		8 mm			6	**CMD08-2**
		10 mm			7	**CMD10-2**
		12 mm			8	**CMD12-2**
	Silencer		3	**MMDVA1**	5	**MMDVA2**
	Plug		3	**PMDXX1**	5	**PMDXX2**

* Fittings and plugs pack quantity: 10

Electrical connectors



Description	Connector type	Cable length	W (g)	Order code
Individual lockable connector – IP67	M8 / 2 x Flying leads	2 meters	62	**P8LS08L226C**
Including LED and surge protection		5 meters	155	**P8LS08L526C**
2 Flying leads		9 meters	180	**P8LS08L926C**
Clip connector – IP40	1 x Clip connector	1 meter	8	**P8LW021C**
Individual: Including 2 flying leads		2 meter	12	**P8LW022C**
Multiple: Including 1 common (0 Vdc)	2 x Clip connectors	1 meter	12	**P8LW021C02**
and 1 flying lead per connector	4 x Clip connectors	1 meter	20	**P8LW021C04**
	8 x Clip connectors	1 meter	36	**P8LW021C08**
Straight cable quick connect to thread	M8		12	**P8CS0803J**
connector, IP67 protected	M12		15	**P8CS1204J**

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Peripheral Valve Modules: P series

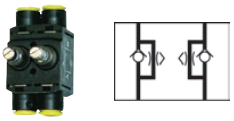
Four additional peripheral modules complete the valve system in order to facilitate the installation of specific cylinder controls:
- Dual flow control, for cylinder speed adjusting;
- Dual pilot operated check valve, for cylinder positioning;
- Pressure regulator, for cylinder thrust adjusting;
- Vacuum generator, for vacuum pad controls.



Module function selection

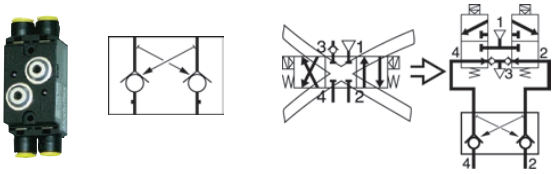
Dual flow control

By controlling the exhaust flows of a double acting cylinder, this module can adjust both speeds: forwards and backwards.



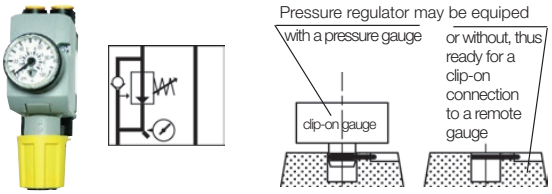
Dual pilot operated check valve

Combined with a double 3/2 NC + NC valve, this module will block flows and stop cylinder movement as soon as the valve outputs are both exhausted. Better than a 3 position closed centre valve, it provides accurate positioning when mounted close to the cylinder.



Pressure regulator

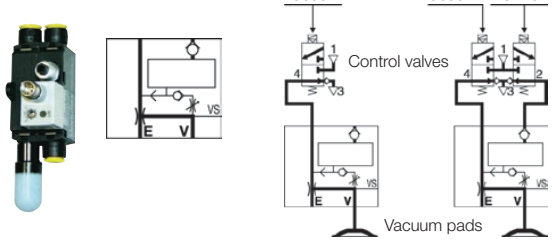
The thrust developed by a cylinder often requires adjustment by controlling the pressure to the front or back of the piston. This pressure regulator module enables manual adjustment of pressure on one side of the piston, with visual indication provided by the pressure gauge.



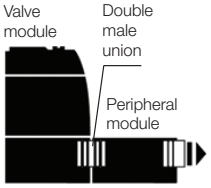
Vacuum generator

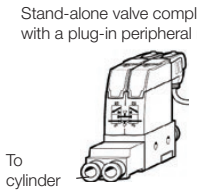
This multi-purpose module controls vacuum pads with a choice between two basics schematics:
- Controlled with only one 3/2 NC valve, the vacuum generator provides vacuum to the pads during valve actuation and then blow-off supplied from an integrated chamber.
- Controlled with a double 3/2 NC + NC, the vacuum generator provides vacuum during the first valve actuation, and then strong blow-off from the second valve.

Integrated blow-off flow controller. Optional plug-in vacuum sensor.



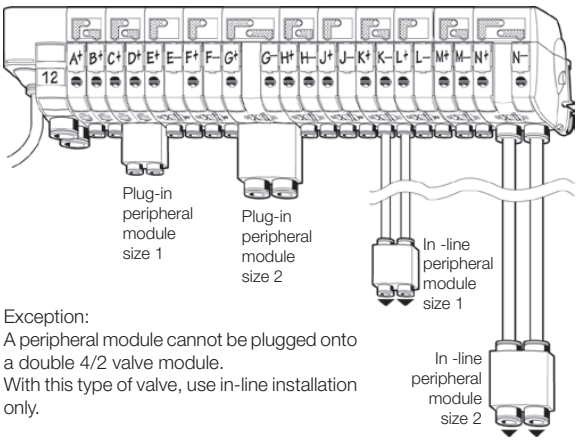
Module installation selection





Peripheral modules may either be mounted:
- Plugged into the valve module through double male unions;
- Or in line, close to the cylinder to control it better.





Exception:
A peripheral module cannot be plugged onto a double 4/2 valve module.
With this type of valve, use in-line installation only.

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Basic peripheral modules (without connector)

Peripheral Modules					Size 1		Size 2
Symbol	Description			Weight (g)	Order code	Weight (g)	Order code
	Dual flow control			50	**P2M1PXFA**	50	**P2M2PXFA**
	Dual P.O. check valve			50	**P2M1PXCA**	50	**P2M2PXCA**
	Pressure regulator	Pressure range	Gauge				
		0 - 2 bar	0 - 4 bar	135	**P2M1PXSR**	135	**P2M2PXSR**
			Without	105	**P2M1PXST**	165	**P2M2PXST**
		0 - 4 bar	0 - 7 bar	135	**P2M1PXSM**	135	**P2M2PXSM**
			Without	105	**P2M1PXSL**	165	**P2M2PXSL**
		0 - 8 bar	0 - 11 bar	135	**P2M1PXSG**	135	**P2M2PXSG**
			Without	105	**P2M1PXSN**	165	**P2M2PXSN**
	90% Vacuum generator			30	**P2M1PXVA**		

Clip-On pneumatic connectors *

Valve Modules				Size 1		Size 2
	Description	Tube OD	Weight (g)	Order code	Weight (g)	Order code
	Straight connector	G1/8"	2	**FMDG1-1**		
		4 mm	2	**FMD04-1**		
		6 mm	3	**FMD06-1**	3	**FMD06-2**
		8 mm			4	**FMD08-2**
		10 mm			5	**FMD10-2**
		12 mm			6	**FMD12-2**
	Elbow connector	G1/8"	3	**CMDG1-1**		
		4 mm	3	**CMD04-1**		
		6 mm	5	**CMD06-1**	5	**CMD06-2**
		8 mm			6	**CMD08-2**
		10 mm			7	**CMD10-2**
		12 mm			8	**CMD12-2**
	Double male union		5	**HMDXX1**	8	**HMDXX2**
	Silencer		3	**MMDVA1**		
	Plug		3	**PMDXX1**	5	**PMDXX2**

* Fittings and plugs pack quantity: 10

Clip-on accessories

	Description	Connection	Pressure range	Weight (g)	Order code
	Clip-on pressure gauge	Clip-on	0 to 4 bar	30	**P2M1K0GT**
	for pressure regulator modules,		0 to 7 bar	30	**P2M1K0GL**
	size 1 or size 2		0 to 11 bar	30	**P2M1K0GN**
	Analog (1 - 5 Vdc) Vacuum Sensor	Diam. 4 mm tube	0 to -1 bar	25	**MPS-V8T4-AG**
	Flying lead 2 meter cable	Diam. 6 mm tube	0 to -1 bar	25	**MPS-V8T-AG**
	Dig. PNP / Ana (4 - 20 mA) Vacuum Sensor 15 cm cable - M8 4 pin's connector	G 1/8" male	0 to -1 bar	45	**MPS-V34G-PCI**

Complete module ordering, as compared to basic module ordering

Complete modules

Ordered from the following pages, the complete modules are supplied all equipped with their electrical and pneumatic connectors. Only one order line is necessary, and each module comes complete, with just the necessary chosen connectors.



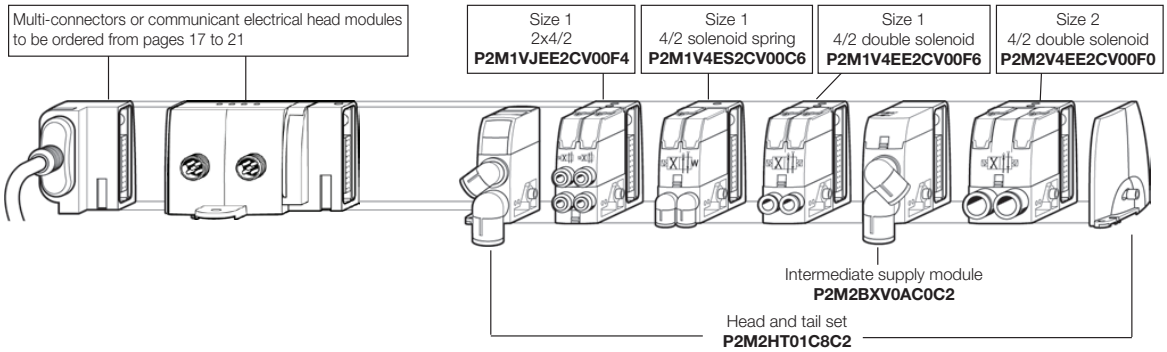
Basic modules

Ordered from the previous pages, the basic modules are to be equipped with their connectors. The clip-on assembly to the module is easy. The main advantage is flexibility : connector type and size may be chosen at the last moment, to better fit the machine needs.



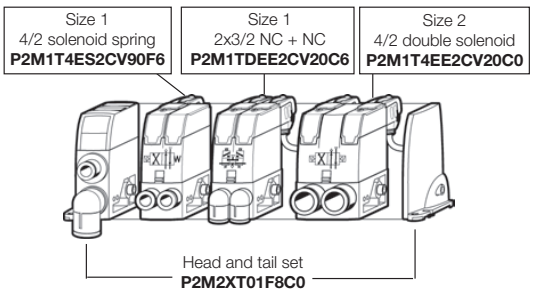
V series

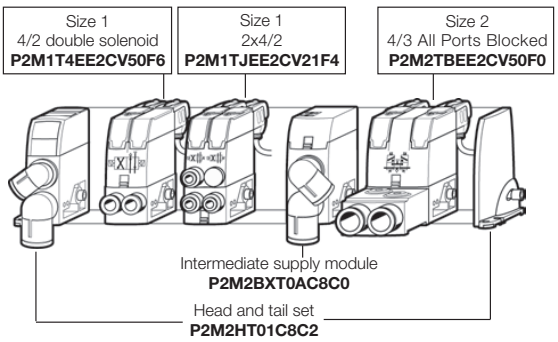
See opposite page for complete module order code chart



T series

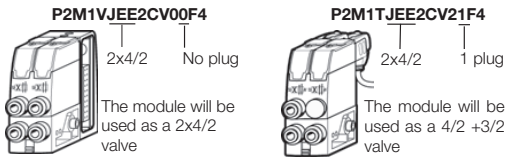
See opposite page for complete module order code chart





Special case : the 2 x 4/2 mini-module plug configuration

For micro-cylinders, this very compact 2 x 4/2 module (order code. JEE) may also be used to obtain 3/2 valves, either Normally Closed or Normally Open.
To do so, the complete module may be supplied with plugs that may replace some of the plug-in connectors.
To order, use the top chart from opposite page.



S and P series

See page 28 and 29 for complete module order code charts.

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Complete Moduflex modules, equipped with their electrical and pneumatic connectors, may be ordered. To do so, use the below chart to define the complete module order codes.

Valve modules



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
P	2	M	1	V	4	E	E	2	C	V	0	0	F	6

Minimum ordering quantity: 10 pieces

Voltage	
00	Pneumatic pilot
2C	24VDC

Size	
1	Size 1
2	Size 2

Series	
V	Integrated connections
T	Individual connectors

Pilot Connection & Cable Length		
Valvetronic V Series IP65		
V	0	V Series - Integrated Valvetronic Gallery
T Series - M8 Connector		
0	0	No cable (also for pneumatic remote pilot)
V	2	2 meter cable - M8 connector
V	5	5 meter cable - M8 connector
V	9	10 meter cable - M8 connector
T Series - Clip Connector		
W	0	No cable
W	1	1 meter cable - Clip connector
W	2	2 meter cable - Clip connector
T Series - Pneumatic Remote Pilot		
0	0	4 mm OD tubing

Pneumatic connectors Ports 2 & 4	
Size 1 modules	
F4	Straight 4 mm OD
C4	Elbow 4 mm OD
F6	Straight 6 mm OD
C6	Elbow 6 mm OD
Size 2 modules	
F6	Straight 6 mm OD
C6	Elbow 6 mm OD
F8	Straight 8 mm OD
C8	Elbow 8 mm OD
F0	Straight 10 mm OD
C0	Elbow 10 mm OD

Valve Function - Solenoid Versions *	
4 E S	4/2 Solenoid spring
4 E E	4/2 Double solenoid
D E E	2 x 3/2NC + NC (with exhaust check valve)
C E E	2 x 3/2 NO + NO (with exhaust check valve)
E E E	2 x 3/2 NC + NO (with exhaust check valve)
3 E S	3/2 NC (with exhaust check valve)
G E E	4/3 centre exhaust (= 2x3/2 without exhaust check valve)
B E E	2x3/2 + clipped dual PO check (= 4/3 APB)
Size 1 only: J E E	2x4/2 with exhaust check valve with plug configuration

Plug configurations	
0	No plug

Only for JEE 2x4/2 modules (1)	
0	0 plug (2x 4/2)
1	1 plug (4/2 + 3/2)
2	2 plugs (2x3/2 or 1x4/2)
3	3 plugs (1x3/2)

* For T Series - Pneumatic Pilot: Replace "ES" or "EE" by "PS" or "PP"

Head/Tail & Intermediate Modules

1	2	3	4	5	6	7	8	9	10	11	12	13
P	2	M	2	H	X	T	0	1	F	0	C	2

Minimum ordering quantity: 10 pieces

	Head and intermediate module	
	HXT01	**V** and **T** series Pneumatic head and tail set
	BXV0A	**V** series intermediate supply module with a set of 4 configuration plates
	BXT0A	**T** series intermediate supply module with a set of 4 configuration plates

Pressure port connector	
F6	Straight 6 mm OD
C6	Elbow 6 mm OD
F8	Straight 8 mm OD
C8	Elbow 8 mm OD
F0	Straight 10 mm OD
C0	Elbow 10 mm OD
F2	Straight 12 mm OD
C2	Elbow 12 mm OD
PP	Plug
MM	Muffler

Exhaust port connector	
F6	Straight 6 mm OD
C6	Elbow 6 mm OD
F8	Straight 8 mm OD
C8	Elbow 8 mm OD
F0	Straight 10 mm OD
C0	Elbow 10 mm OD
F2	Straight 12 mm OD
C2	Elbow 12 mm OD
PP	Plug
MM	Muffler

Complete Moduflex stand alone valves, equipped with their electrical and pneumatic connectors, may be ordered. To do so, use the below chart to define the complete module order codes.

Stand alone valve modules



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
P	2	M	1	S	4	E	E	2	C	V	5	A	F	6

Minimum ordering quantity: 10 pieces

Size	
1	Size 1
2	Size 2

Series	
S	Stand alone valve modules

Voltage	
00	Pneumatic pilot
2C	24VDC

Pilot Connection & Cable Length		
M8 Connector		
0	0	No cable
V	2	2 meter cable - M8 connector
V	5	5 meter cable - M8 connector
V	9	10 meter cable - M8 connector
Clip Connector		
W	0	No cable
W	1	1 meter cable - Clip connector
W	2	2 meter cable - Clip connector
Pneumatic Remote Pilot		
0	0	4 mm OD tubing

Valve Function - Solenoid Versions *	
4 E S	4/2 Solenoid spring
4 E E	4/2 Double solenoid
D E E	2 x 3/2NC + NC (with exhaust check valve)
C E E	2 x 3/2 NO + NO (with exhaust check valve)
E E E	2 x 3/2 NC + NO (with exhaust check valve)
3 E S	3/2 NC (with exhaust check valve)
G E E	4/3 centre exhaust (= 2x3/2 without exhaust check valve)
B E E	2x3/2 + clipped dual PO check (= 4/3 APB)

* Pneumatic Pilot: Replace "ES" or "EE" by "PS" or "PP"

Pneumatic connectors					
Ports 1 & 3		**Outlet ports 2 & 4**		**Tube OD**	
A	Straight & straight	F	Straight & straight	**Size 1 modules**	
B	Elbow & elbow	C	Elbow & elbow	4	4 mm OD
C	Straight & muffler	0	No connector for plug-in P module	6	6 mm OD
D	Elbow & muffler			**Size 2 modules**	
				6	6 mm OD
				8	8 mm OD
				0	10 mm OD

Size 1
4/2 solenoid spring
P2M1S4ES2CV5CC6





Size 2
4/2 double solenoid
P2M2S4EE2CV9CC8





Size 2
2x3/2 NC + NC
P2M2SDEE2CV2CC0

Size 1
2x3/2 NC + NC
P2M1SDEE2CV2BC6





Size 2
4/3 All Ports Blocked
P2M2SBEE2CV2AF0

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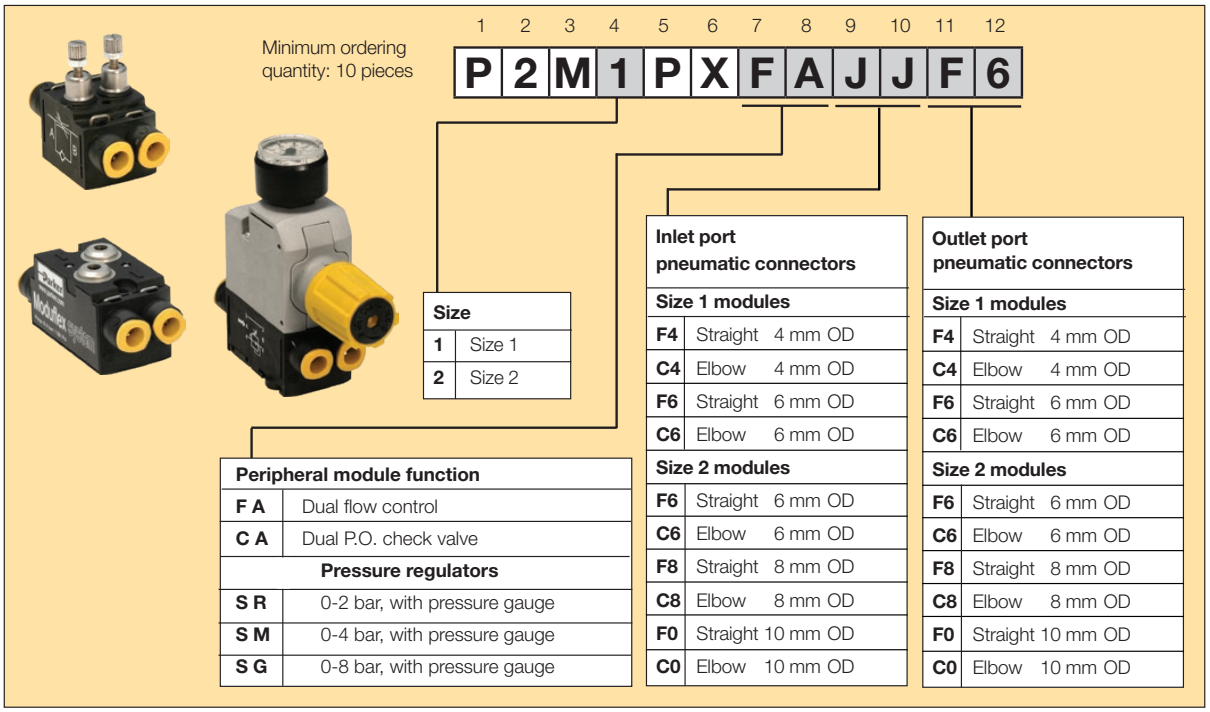
Complete Moduflex peripheral module, equipped with their pneumatic connectors, may be ordered. To do so, use the below chart to define the complete module order codes.

Dual flow control, dual pilot operated check valve, and pressure regulator peripheral modules



Minimum ordering quantity: 10 pieces

1	2	3	4	5	6	7	8	9	10	11	12
P	2	M	1	P	X	F	A	J	J	F	6

Size	
1	Size 1
2	Size 2

Peripheral module function	
F A	Dual flow control
C A	Dual P.O. check valve
Pressure regulators	
S R	0-2 bar, with pressure gauge
S M	0-4 bar, with pressure gauge
S G	0-8 bar, with pressure gauge

Inlet port pneumatic connectors	
Size 1 modules	
F4	Straight 4 mm OD
C4	Elbow 4 mm OD
F6	Straight 6 mm OD
C6	Elbow 6 mm OD
Size 2 modules	
F6	Straight 6 mm OD
C6	Elbow 6 mm OD
F8	Straight 8 mm OD
C8	Elbow 8 mm OD
F0	Straight 10 mm OD
C0	Elbow 10 mm OD

Outlet port pneumatic connectors	
Size 1 modules	
F4	Straight 4 mm OD
C4	Elbow 4 mm OD
F6	Straight 6 mm OD
C6	Elbow 6 mm OD
Size 2 modules	
F6	Straight 6 mm OD
C6	Elbow 6 mm OD
F8	Straight 8 mm OD
C8	Elbow 8 mm OD
F0	Straight 10 mm OD
C0	Elbow 10 mm OD

Vacuum generator peripheral module



Minimum ordering quantity: 10 pieces

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
P	2	M	1	P	X	V	A	F	6	A	F	6	C	M	A

Size	
1	Size 1

Peripheral module function	
V A	Vacuum generator

Exhaust port (3) *	
F4	Straight 4 mm OD
C4	Elbow 4 mm OD
F6	Straight 6 mm OD
C6	Elbow 6 mm OD
MA	Clip-on muffler

Pressure & Blow-off port connectors	
JJ	Clip-on double male union
F4	Straight 4 mm OD
C4	Elbow 4 mm OD
F6	Straight 6 mm OD
C6	Elbow 6 mm OD
F1	Straight threaded 1/8"
C1	Elbow threaded 1/8"

A	2 clip-on male union
A	2 push-in connectors
B	1 push-in connector 1 plug on blow-off port

Vacuum and Vacuum Sensor port connectors	
F4	Straight 4 mm OD
C4	Elbow 4 mm OD
F6	Straight 6 mm OD
C6	Elbow 6 mm OD
F1	Straight threaded 1/8"
C1	Elbow threaded 1/8"

A	2 similar connectors
B	1 connector on vacuum port 1 plug on vacuum sensor port
D	1 Connector on Vacuum Port 1 Dig/Ana Vacuum Sensor MPS-V34G-PCI
E	1 Connector on Vacuum Port 1 Analog Vacuum Sensor MPS-V8T-AG

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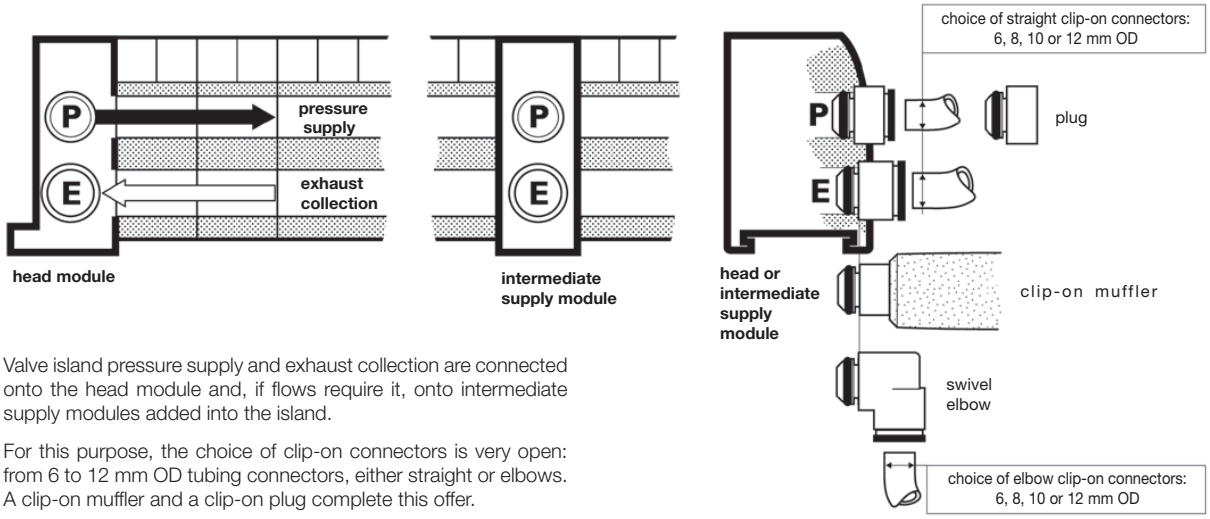
Island head module port sizing

Moduflex is totally flexible: islands may have up to 19 valves for the V Series and is not limited for the T series with a choice of 3 valve sizes, depending on the required flow. Thus, each island has specific needs for the size of it pressure supply and its exhaust collection.

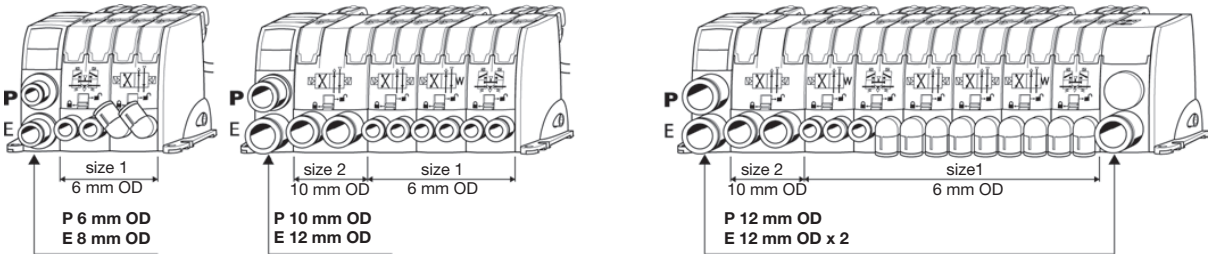
Choice of connections to an island P and E ports



Valve island pressure supply and exhaust collection are connected onto the head module and, if flows require it, onto intermediate supply modules added into the island.

For this purpose, the choice of clip-on connectors is very open: from 6 to 12 mm OD tubing connectors, either straight or elbows. A clip-on muffler and a clip-on plug complete this offer.

Sizing recommendations



The 3 valve islands above present typical situations for sizing islands pressure supply and exhaust collection.

In a given island, valves do not deliver their flow at the same moment. Thus, the number of valves in an island is not the major factor to consider. More important is the size of the largest valve and of the largest output tubes to the cylinders.

ID section areas of standard tubings

2 x 4 mm:	3 mm²	5.5 x 8 mm:	24 mm²	10 x12 mm:	80 mm²
2.7 x 4 mm:	6 mm²	6 x 8 mm:	28 mm²		
4 x 6 mm:	12 mm²	7 x 10 mm:	40 mm²	muffler:	100 mm² equivalent
		8 x 10 mm:	50 mm²		

We would recommend the following:

- air supply connection at least equivalent to largest output tube to cylinders;
- exhaust collection at least twice the section area of the largest output tube to cylinders.

For islands with high flows, the following options are possible:

- use tubes up to 12 mm OD or mufflers providing exhaust collection is not necessary;
- provide additional P and/or E connection ports by inclusion of intermediate supply modules, thus keeping tube size small.

At the machine commissioning stage, the supply and exhaust connections can be easily modified until the required performance is achieved.

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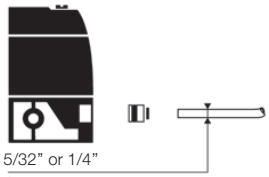
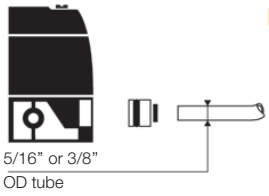
Recommendations for building machines with imperial OD tubes (US usual standard)

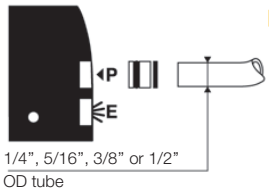
size 1 modules



size 2 modules



head and intermediate island modules



Moduflex is a global product available in the US with the two standards that are commonly used in this country:
- metric OD tubes with the metric connectors shown in this catalogue,
- imperial OD tubes with specific connectors for the US.

Machine builders exporting to the US may propose to their clients one of the following solutions.

- Machines equipped with Moduflex components connected with metric tubes found in this catalogue. Parker will provide products locally for maintenance.

- Or machines equipped with Moduflex components connected with imperial size OD tubes. In this case, use the following procedure to order Moduflex and to build the machine.

Imperial OD tube and metric OD tube comparison

metric standard tube OD	imperial US standard tube OD	metric equivalent	Moduflex clip-on connectors
4 mm	5/32"	4 mm	imperial and metric connectors identical
6 mm	1/4"	6,35 mm	specific imperial connector
8 mm	5/16"	8 mm	imperial and metric connectors identical
10 mm	3/8"	9,53 mm	specific imperial connector
12 mm	1/2"	12,7 mm	specific imperial connector

Moduflex selection for imperial size OD tubes

Such components will easily be obtained with the following procedure:

1 - select the required basic modules (with no connector).

2 - Select from the list below the clip-on connectors for the required imperial OD tubes.

3 - Push-in the connectors into the basic modules ports in order to obtain complete modules.

FMD04-1



FMD07-1



CMD04-1



CMD07-1



pneumatic connectors for size 1 modules		Pack Quant.	elbow version Weight (g) per unit	elbow version Order code	straight version Weight (g) per unit	straight version Order code
clip-on tube push-in connector	5/32"= 4 mm OD	10	5	**CMD04-1**	2	**FMD04-1**
	1/4"OD	10	5	**CMD07-1**	3	**FMD07-1**

FMD07-2



FMD13-2



CMD13-2



pneumatic connectors for size 2 modules head and intermediate island modules		Pack Quant.	elbow version Weight (g) per unit	elbow version Order code	straight version Weight (g) per unit	straight version Order code
clip-on tube push-in connector	1/4"OD	10	5	**CMD07-2**	3	**FMD07-2**
	5/16"= 8 mm OD	10	6	**CMD08-2**	4	**FMD08-2**
	3/8"OD	10	7	**CMD09-2**	5	**FMD09-2**
	1/2"OD	10	8	**CMD13-2**	6	**FMD13-2**

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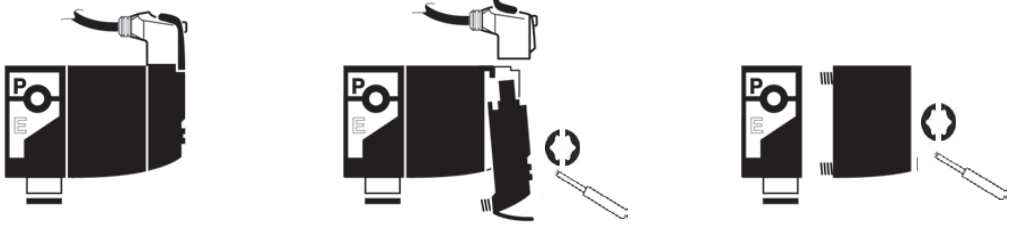
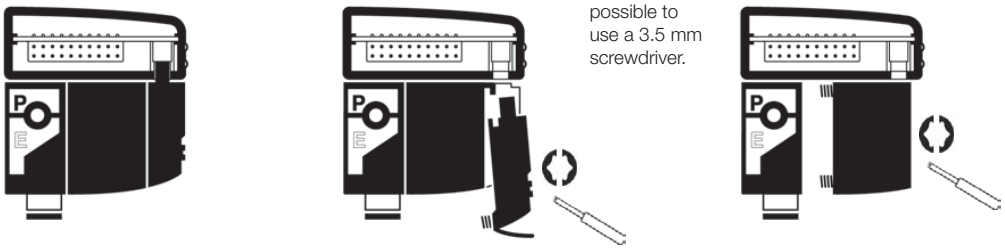
Maintenance procedure

The latest generations of compact pneumatic valves have a life expectancy which generally exceeds the equipment they control. Therefore, although maintenance is seldom required, when necessary the solenoid pilot, valve or connector can be easily replaced without removing the island base, as shown below.

S and **T** series



V series



Please, use a Torx T8 screw driver. Also possible to use a 3.5 mm screwdriver.

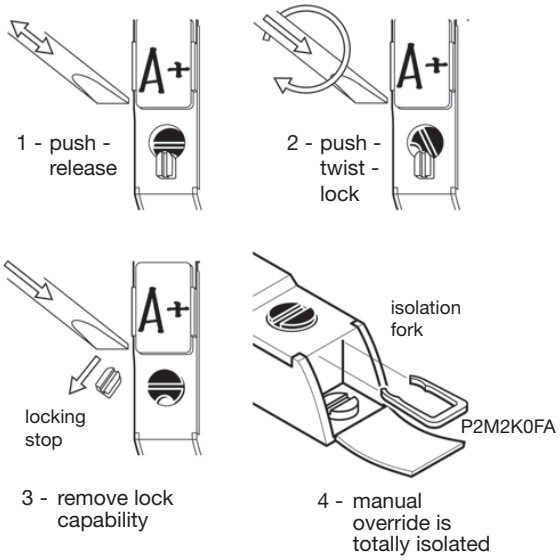
With only one universal solenoid pilot for all configurations, maintenance is simple

24V DC is now a global standard for all machines.

The Moduflex 24V DC unique solenoid pilot is supplied with the multi-function manual override that can be adapted to all requirements, as explained by the drawings.

Because all Moduflex valve and island configurations are supplied with this unique solenoid pilot, maintenance operations remain very simple.

Multi-function adaptable manual override



Maintenance components



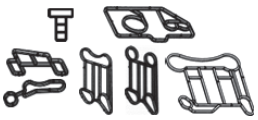
	Valve pilot	Connection	Weight (g)	Order code
	Solenoid pilot	M8 - 3 Pins - IP67	15	**P2D8V32C5**
		Clip connector - 2 pins - IP40 With LED and voltage surge supression	15	**P2D2W3226C5**
	Pneumatic pilot	4 mm OD tubing push-in elbow fitting	10	**P2M2K0PA**


P2M1X4EE

size 1 valve modules without solenoid pilot and without sub-base		Weight (g)	Order code
4/2	monostable	26	**P2M1X4ES**
	bistable	25	**P2M1X4EE**
3/2	double NC + NC	28	**P2M1XDEE**
	double NO + NO	28	**P2M1XCEE**
	double NC + NO	28	**P2M1XEEE**
	single NC	25	**P2M1X3ES**
4/3 CE	double 3/2 NC + NC without exhaust check valve	28	**P2M1XGEE**


P2M2X4EE

size 2 valve modules without solenoid pilot and without sub-base		Weight (g)	Order code
4/2	monostable	28	**P2M2X4ES**
	bistable	30	**P2M2X4EE**
3/2	double NC + NC	32	**P2M2XDEE**
	double NO + NO	32	**P2M2XCEE**
	double NC + NO	32	**P2M2XEEE**
	single NC	28	**P2M2X3ES**
4/3 CE	double 3/2 NC + NC without exhaust check valve	32	**P2M2XGEE**







Set of maintenance parts		Weight (g)	Order code
Seals	Set of various seals: 3 under solenoid pilot seals 3 inter island base seals 2 for dual 4/2 valves (2 parts) 2 for single and dual 3/2 – Size 1 – valves 2 for single 4/2 – Size 1 – valves 2 for size 2 valves (all functions)	8	**P2M2K0JA**
Fitting locking clips	Set of 14 clips: 4 for dual 4/2 valves 6 for size 1 valves 2 for size 2 valves 2 for intermediate supply modules	10	**P2M2K0CA**
Manual override forks	Set of 10 isolating forks for pilot solenoid manual override	8	**P2M2K0FA**

1 - Multi-connector or sub-D 25 valve island

Multi-connector or sub-D 25 electrical head module width: 15 mm

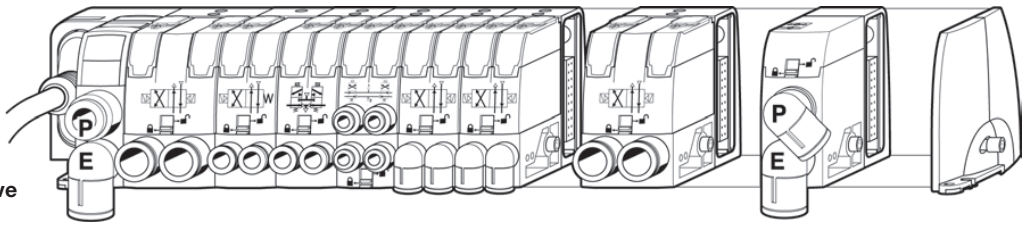
Head and tail pneumatic module set width: 48 mm

Modules size 1 width: 25 mm

Modules size 2 width: 37.5 mm

Intermediate module width: 25 mm

Island total width depending on valve composition



- - - - : sub-D 25

Head module

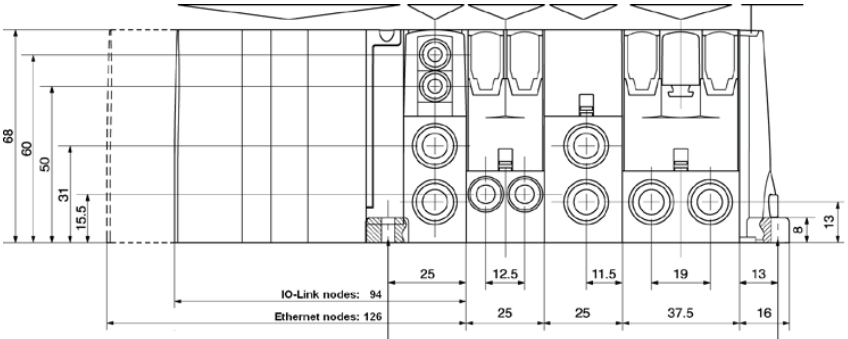
Dual 4/2 module

Module size 1

Intermediate module

Module size 2

Tail plate



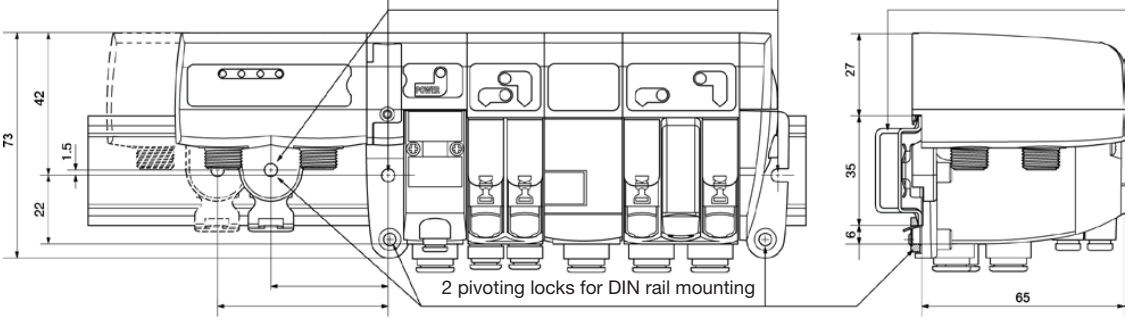
2 screws 4 mm dia. surface mounting

- - - - : sub-D 25

or DIN rail mounting

DIN rail 35x7 mm or 35x15 mm

2 mounting holes 4.3 mm dia

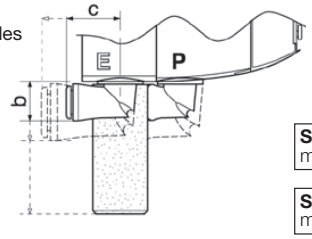


2 pivoting locks for DIN rail mounting

2 pivoting locks for DIN rail mounting

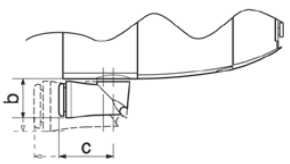
Special case: 4/3 closed centre function within island version:
Add the dimensions of the dual P.O. check valve module plugged into the island. See pages 39 and 40 for dimensions.

Island head and intermediate modules



	a	b	c
6 mm tube OD	8	13	16
8 mm tube OD	9	16	19
10 mm tube OD	13	18	22
12 mm tube OD	13	19	25
Muffler		40	

Island valves modules



	OD tube	a	b	c
Size 1 modules	4 mm	8	10	12
	6 mm	8	13	16
Size 2 modules	8 mm	9	16	19
	10 mm	13	18	22

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2 - Industrial Communication Valve Islands

Island total width depending on valve composition

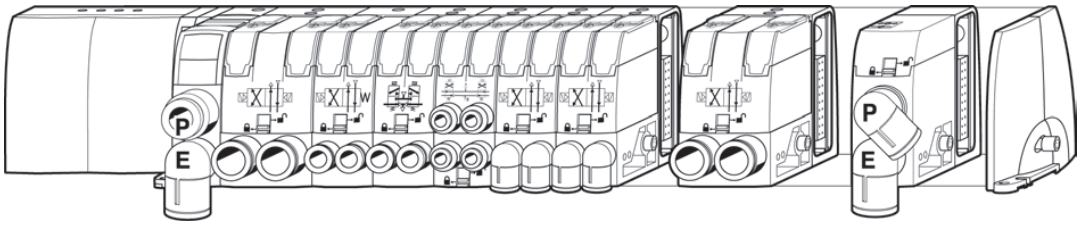
Communication nodes
IO-Link & P2M Lite: width 62 mm
Ethernet nodes: width 94 mm

Head and tail
pneumatic module set
width: 48 mm

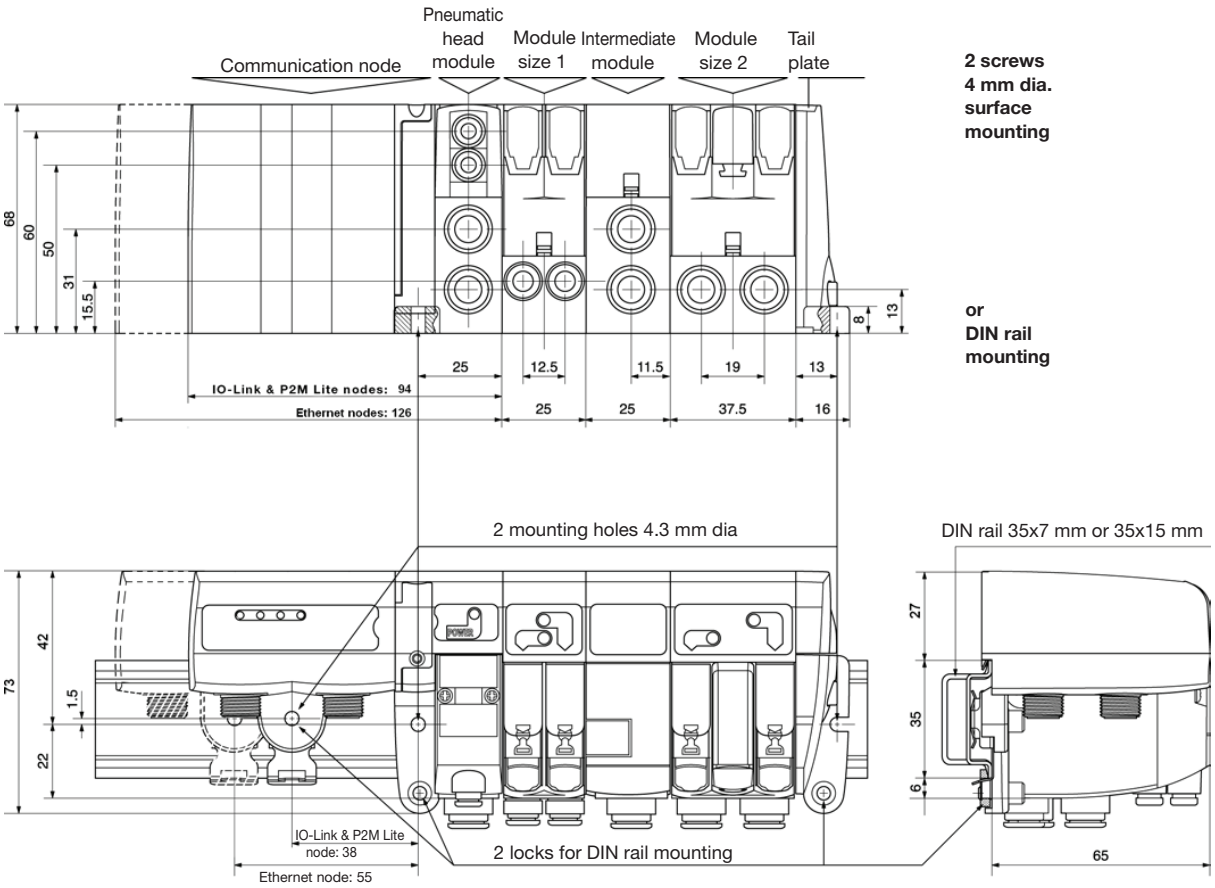
Modules
size 1
width: 25 mm

Modules
size 2
width: 37.5 mm

Intermediate
module
width: 25 mm



Moduflex Valve island with Ethernet & IO-Link communication node



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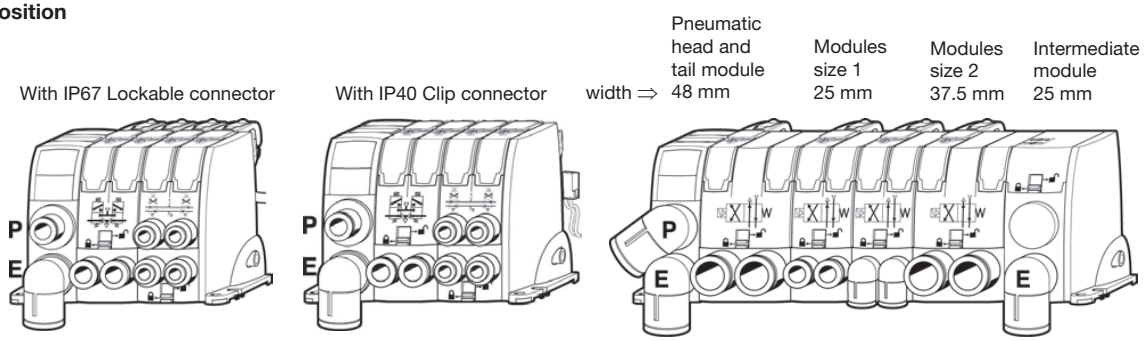
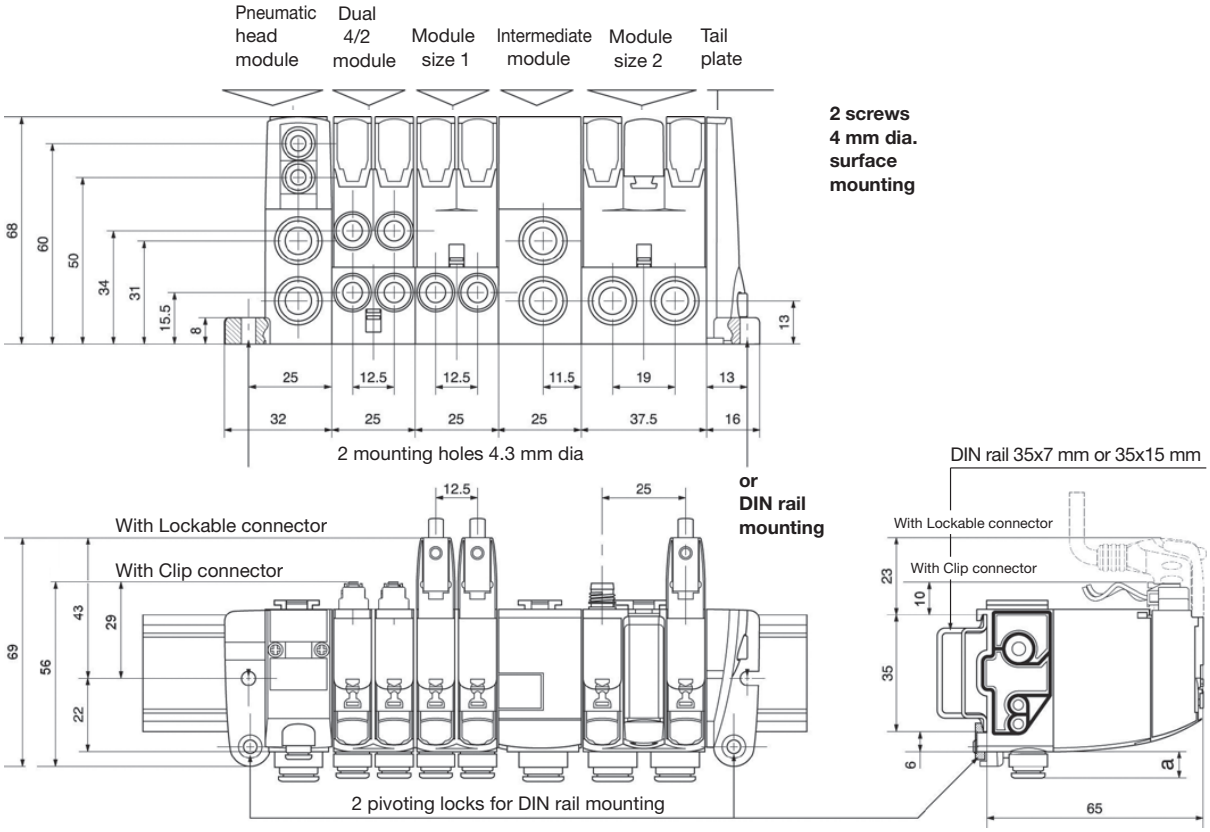
Island total width depending on valve composition

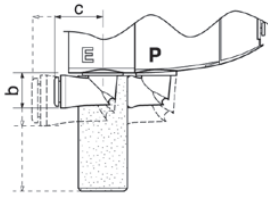




Special case : 4/3 closed centre function within island version:
Add the dimensions of the dual P.O. check valve module plugged into the island.

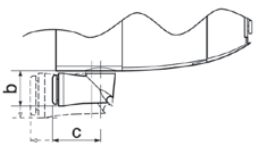
Island head and intermediate modules

	a	b	c
6 mm tube OD	8	13	16
8 mm tube OD	9	16	19
10 mm tube OD	13	18	22
12 mm tube OD	13	19	25
Muffler		40	



Island valves modules

	OD tube	a	b	c
Size 1 modules	4 mm	8	10	12
	6 mm	8	13	16
Size 2 modules	8 mm	9	16	19
	10 mm	13	18	22



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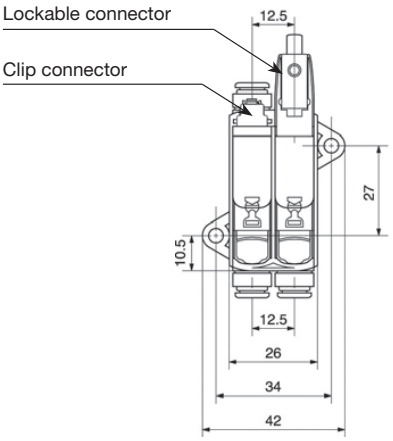
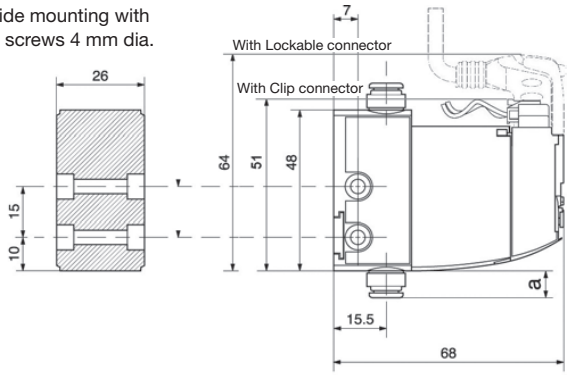
Stand-alone valve size 1



surface mounting with screws
4 mm dia. into retractable brackets 3 mm thick

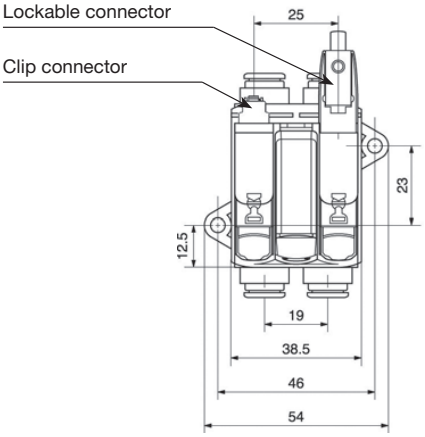


or side mounting with
2 screws 4 mm dia.

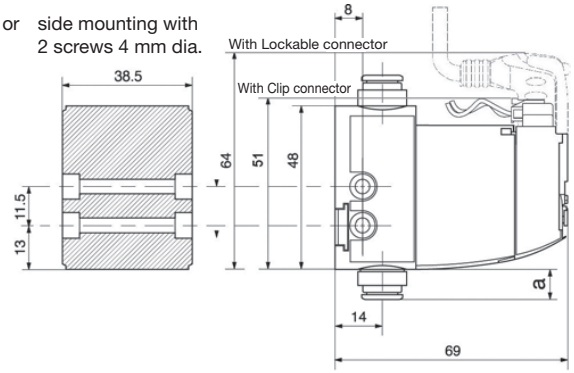


Stand-alone valve size 2





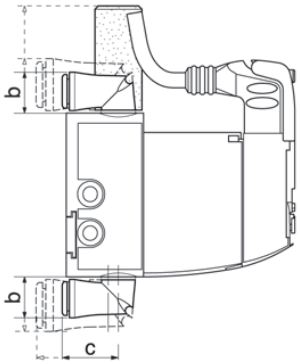
or side mounting with
2 screws 4 mm dia.



Dimensions and mountings
of the stand-alone valves
4/2, double and single 3/2,
4/3 vented centre and
4/3 pressure centre.

Special case : 4/3 closed centre.
Add the dual P.O. check
valve module that has been
plugged in the basic valve.

		a	b	c
Size 1 modules	4 mm tube OD	8	10	12
	6 mm tube OD	8	13	16
	Muffler		31	
Size 2 modules	8 mm tube OD	9	16	19
	10 mm tube OD	13	18	22
	Muffler		40	



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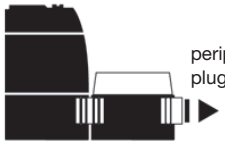
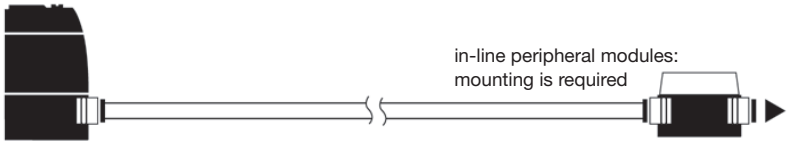
Reminder: peripheral modules may either be plugged in the valve output ports or mounted in line separate from the valve

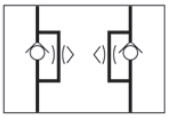


peripheral module plugged in a valve or an island

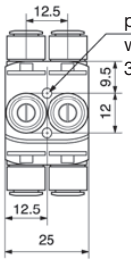


in-line peripheral modules: mounting is required

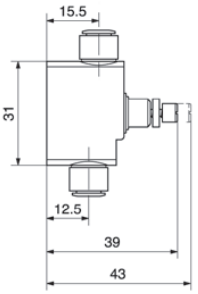
Dual flow control module size 1







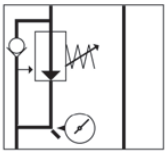
possible mounting with 2 screws 3 mm dia.



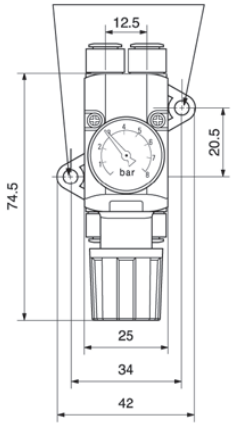
Pressure regulation module size 1

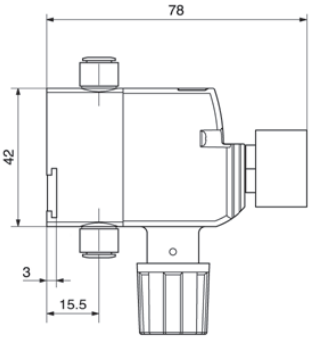
mounting with 2 screws 4 mm dia. on retractable brackets

- with gauge

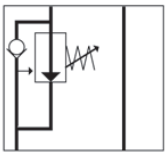




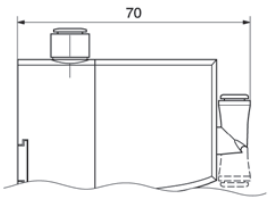




- without gauge

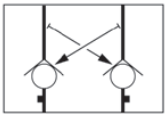




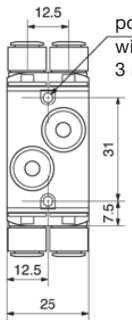


swivel elbow push-in connector 4 mm OD tube

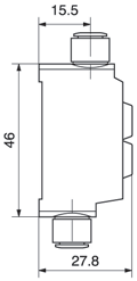
Dual P.O. check valve module size 1







possible mounting with 2 screws 3 mm dia.



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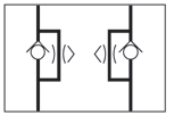
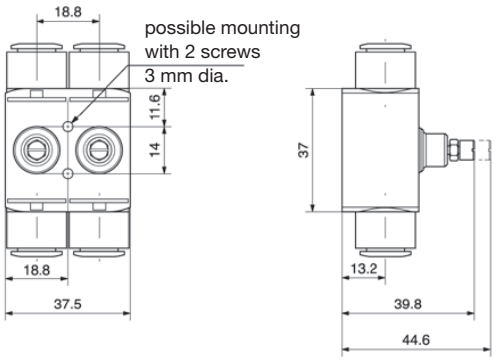
Dual flow control module size 2

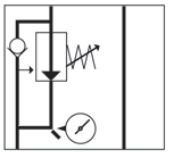




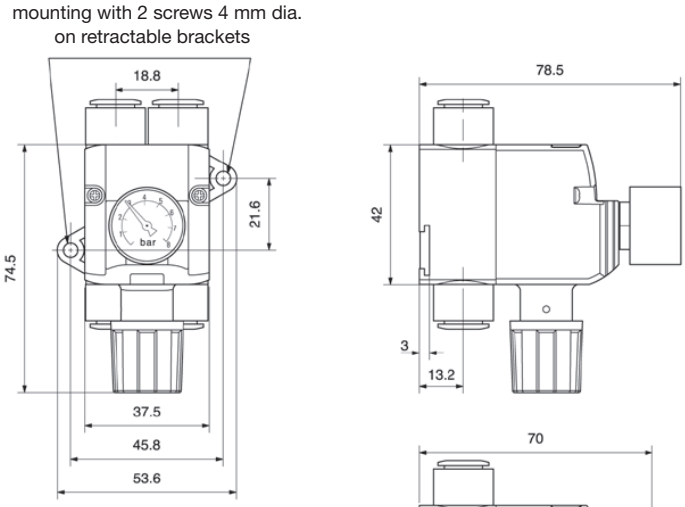


Pressure regulation module size 2

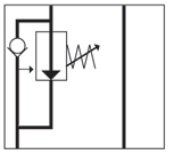
- with gauge



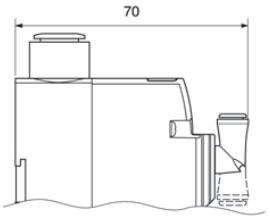




- without gauge

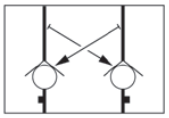




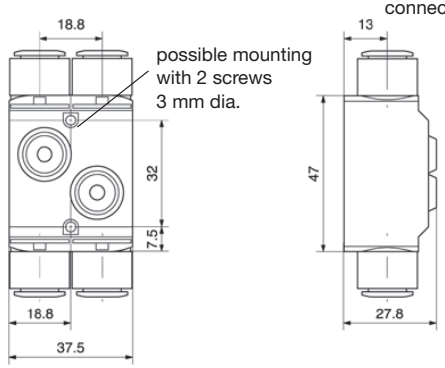


swivel elbow push-in
connector 4 mm OD tube

Dual P.O. check valve module size 2







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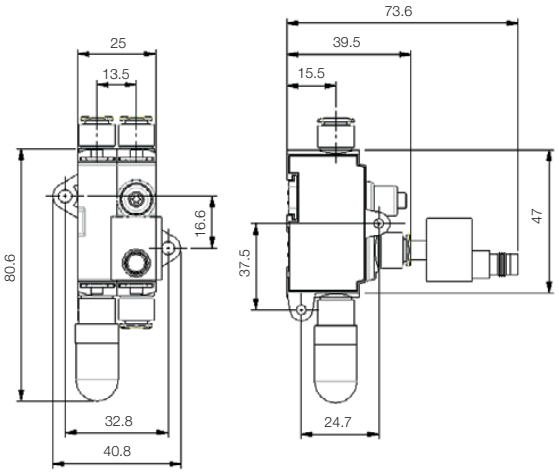
Vacuum generator module

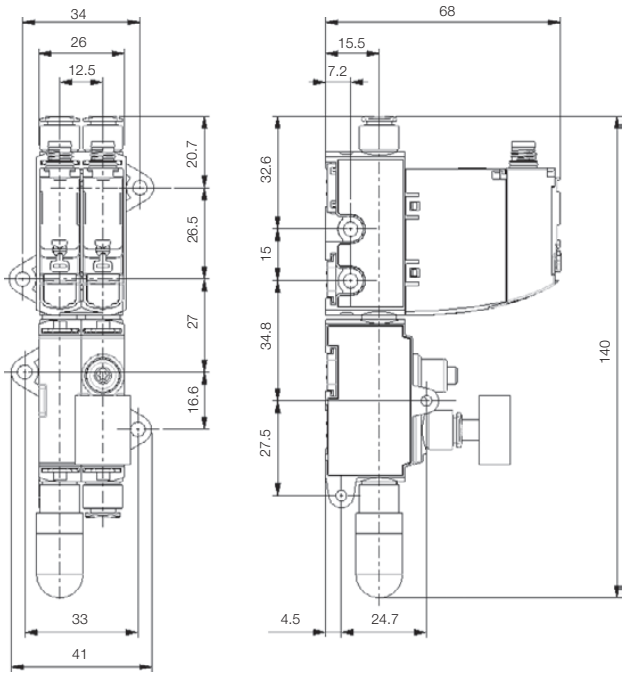
In-line





With Moduflex valve





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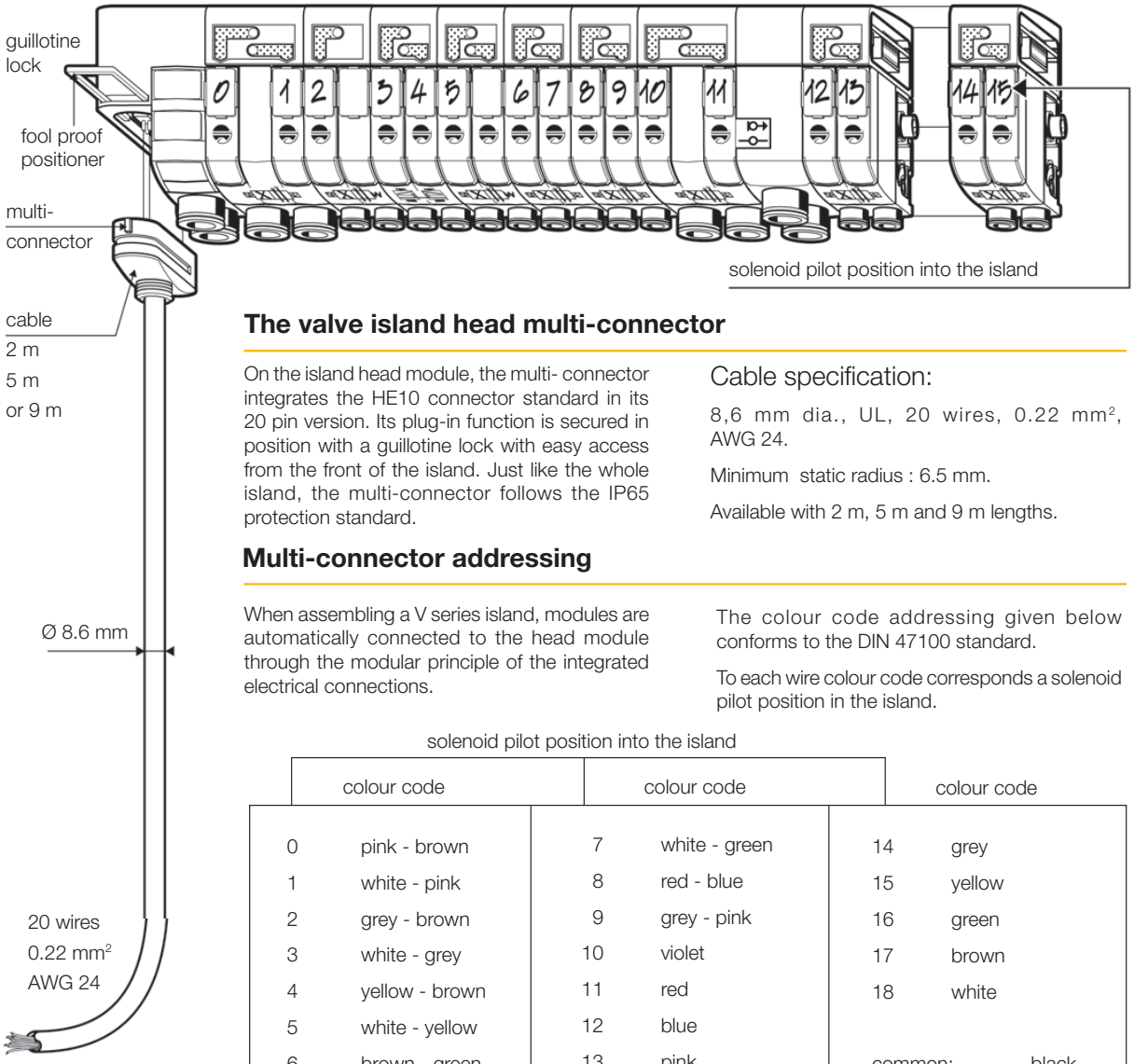


The valve island head multi-connector

On the island head module, the multi- connector integrates the HE10 connector standard in its 20 pin version. Its plug-in function is secured in position with a guillotine lock with easy access from the front of the island. Just like the whole island, the multi-connector follows the IP65 protection standard.

Cable specification:

8,6 mm dia., UL, 20 wires, 0.22 mm², AWG 24.

Minimum static radius : 6.5 mm.

Available with 2 m, 5 m and 9 m lengths.

Multi-connector addressing

When assembling a V series island, modules are automatically connected to the head module through the modular principle of the integrated electrical connections.

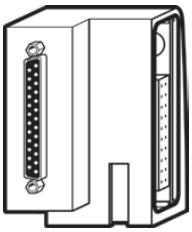
The colour code addressing given below conforms to the DIN 47100 standard.

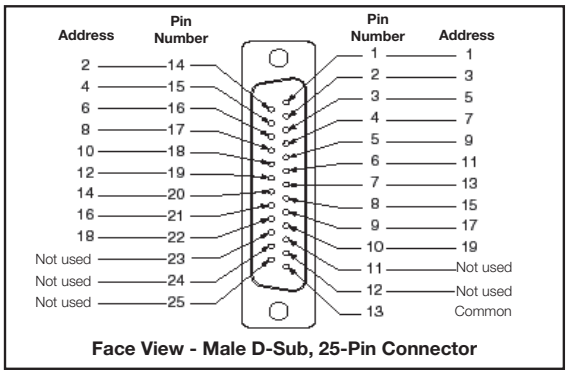
To each wire colour code corresponds a solenoid pilot position in the island.

solenoid pilot position into the island

	colour code		colour code		colour code
0	pink - brown	7	white - green	14	grey
1	white - pink	8	red - blue	15	yellow
2	grey - brown	9	grey - pink	16	green
3	white - grey	10	violet	17	brown
4	yellow - brown	11	red	18	white
5	white - yellow	12	blue		
6	brown - green	13	pink	common:	black

Sub-D 25 addressing





Face View - Male D-Sub, 25-Pin Connector

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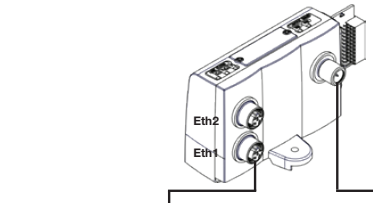
Industrial Ethernet node connection and diagnostic functions

Ethernet Ports and Auxiliary Power Connection

Ethernet ports: 2 x Standard Female M12 D-Coded – 5 pins
Auxiliary Power: Standard Male M12 A-Coded – 4 pins.

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



Eth. 1 & 2 – Female M12 D-Coded



PIN #	Description
1	TxData +
2	RxData +
3	TxData -
4	RxData -
5	na

Aux. Power – Male M12 A-Coded



PIN #	Description
1	Logic Power +
2	AUX Power -
3	Logic Power -
4	AUX Power +

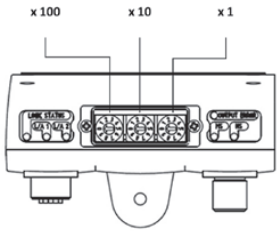
Configuration File

The configuration files can be download from the product web page: www.parker.com/pde/P2M_IE.

IP Address Setting

The IP-Address of the device can be assigned via:

- Rotary Switches, DHCP, Web page, Ipconfig Tool or TCP/IP Interface Object, depending on protocol version:



Description	EtherNet/IP Profinet IO Modbus TCP/IP	Ethernet PowerLink	EtherCAT	CC-Link IE
IP-Address setting stored into the NV-memory of the P2M node	000	000	N/A	000
IP-Address setting determined by the 3 rotary switches: • IP Address: 192.168.1.**xxx** • Subnet Mask: 255.255.255.0 • Default Gateway for 001: 192.168.1.**2** • Default Gateway for 002 - 254: 192.168.1.**1**	001 – 254	001 – 239	N/A	001 – 120
The device will obtains its address via DHCP	888	N/A	N/A	N/A
Reset to factory status	999	999	999	999
Invalid. The module will not start (see Local Visual Diagnostic section for details)	All others	All others	All others	All others

Case of Use with SAFE Power Source for Valve Control

The P2M Industrial Ethernet 24 DO nodes can support a SAFE OSSD power source for valve control (Aux + / Aux –). It can also be connected in both PP or PM mode.

For further details, please refer to the Ethernet node user manual available from the product web page:

- www.parker.com/pde/P2M_IE

Local and network diagnostic functions

Local diagnostic

The P2M Industrial Ethernet node offers a local diagnostic via 7 LED's. Pls refer to user manual with interpretation given by this table.

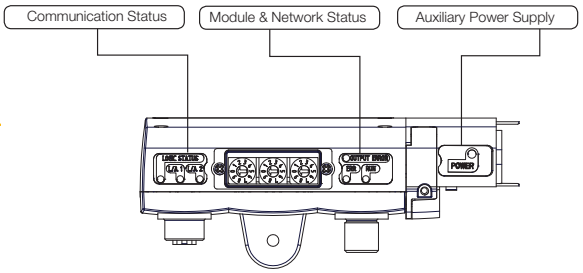
Network diagnostic

The P2M Industrial Ethernet node offers additional useful module status information:

- Pilot overload or short circuit
- Auxiliary Voltage out of tolerance
- Cycle counter for every pilot
- Module temperature
- …

For deeper information on product technical information and a complete interpretation of node diagnostic functionalities, please refer to the User Manual available from the product web page:

www/parker.com/pde/P2M_IE



Industrial Ethernet Lite Node connections and diagnostic functions

Ethernet and Power Connections

Network Communication Ports:

2 x Standard RJ45 Female connectors

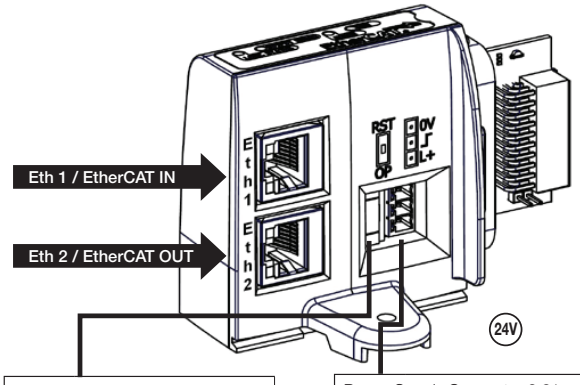
Usage of standard manufactured cables available from your usual electrical supplier is recommended.

Power Supply:

Standard 3-Pin' Male Connector - 3,81 mm pitch

Working mode selector:

DIP-switch



Working mode selector DIP-switch	
RST OP	Reset to factory
	Normal Operation

Power Supply Connector 3,81 mm pitch	
0V L+	0 Vdc
	Ouput Enable
	24 Vdc

Configuration Files

The configuration files can be download from the product web page: www.parker.com/pde/P2M_IE

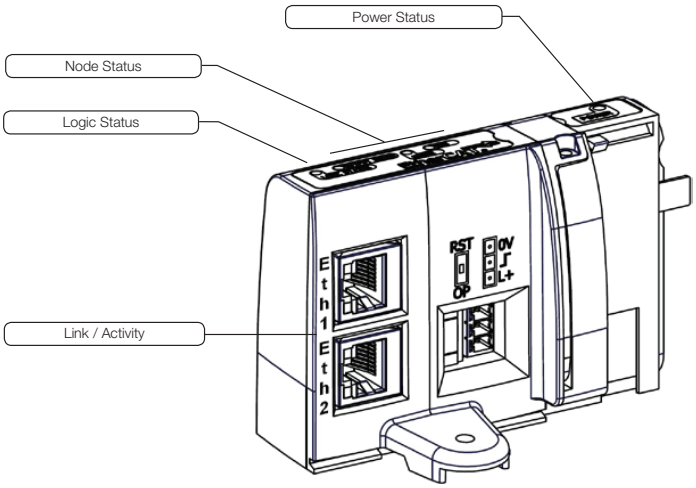
IP Address Setting

For both Profinet IO and EtherNet/IP protocols, the P2M Lite 24DO Node is by default in DHCP mode. The module must be assigned to a static IP-Address in order to be controlled via network. Please, refer to the user manual for IP-Address assignment process.

Local and Network diagnostic functions

Local diagnostic

The P2M Lite 24DO node offers a local diagnostic via 9 LED's. Please refer to user manual with interpretation table.



Network diagnostic

The P2M Lite 24DO Node offers additional useful module status information:

- Pilot overload or short circuit
- Power Voltage out of tolerance
- Cycle counter for every pilot
- Module temperature
- ...

For detailed technical information on the P2M Lite 24DO Node and a complete interpretation of node's diagnostic functionalities, please refer to the User Manual available from the product web page:

www.parker.com/pde/P2M_IE

IO-Link module connection and diagnostic functions

IO-Link

IO-Link module connection

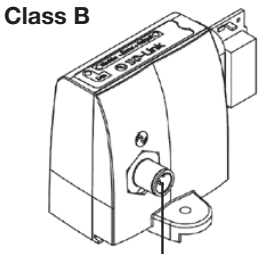
Standard male M12 – type A

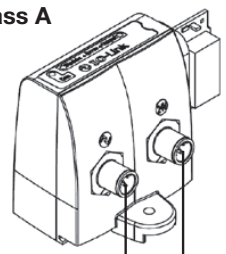
Usage of standard manufactured cables available from your usual electrical supplier is recommended.

Note: Auxiliary power for solenoids can be wired separately allowing users to turn outputs off while the communications remains active.

Configuration

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





Legend

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

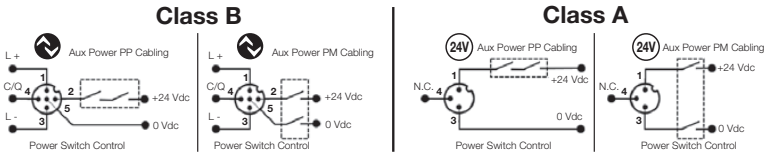
Class B	Class A
5 Pin's	3 Pin's
P2M...B..	P2M...A..
L+	L+
Aux +	-
L-	L-
C/Q	C/Q
Aux -	-

M12 Pin's	Class A		
	3 Pin's		5 Pin's
	P2M...A13	P2M...A43	P2M...A42
1	Aux +	Not used	Not used
2	-	-	Aux -
3	Aux -	Aux -	Not used
4	n.c.	Aux +	Aux +
5	-	-	Not used

Case of use with SAFE cabling

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

IO-Link nodes Class A & B -SPC version are compatible with SAFE OSSD power source for valve control (Aux + / Aux –).
For further details, please refer to the user manual N. 30048690201W05.



Shone here cabling
for P2M2HBVL12400A13 / -SPC

IO-Link module diagnostic functions

The P2M IO-Link node offers additional useful module status information:

- Pilot overload or short circuit
- Auxiliary Voltage out of tolerance
- Cycle counter for every pilot
- Module temperature

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

www.parker.com/pde/io-link

Green LED (COM.)

LED Status	Description	Solving
OFF	IO-Link L+ / L- not powered	Check connection
ON	IOL L+ / L- powered IO mode	Set IO-Link mode in IO-Link master
Blinking	IO-Link communication active	NA

Red LED (Module — Error)

LED Status	Description	Solving
OFF	Standard mode	NA
ON	24 Vdc AUX power missing or any active malfunction	Check power supply or change module

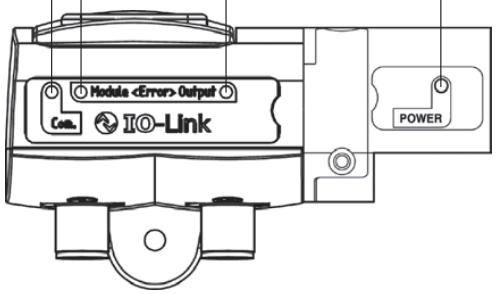
Red LED (Error — Output)

LED Status	Description	Solving
OFF	Standard mode	NA
ON	Any driver error (overload, over temperature, etc.)	Fix solenoid issue then acknowledge error

Green LED (POWER)

LED Status	Description	Solving
OFF	AUX power failure	Check Auxilliary Power Supply
ON	Standard	NA
Blinking	Aux Power is out of range, alarm level	Check Auxilliary Power Supply

IO-Link Communication | Module Diagnostic | Outputs (valves)Diagnostic | Auxiliary Power Supply



Moduflex Valve System

V series
Integrated connection industrial comms or multi-connector valve island



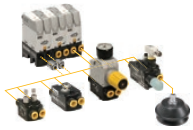
T series
Individual connector valve islands
Solenoid clip or lockable connector or remote air pilot



S series
Stand alone valves
Solenoid clip or lockable connector or remote air pilot

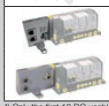


P series
Peripheral modules
Flow control, check valves, pressure regulator, vacuum



1

Industrial communication node head module

	Protocol		Nb of DO's		
	IO-Link	IP65	Class A - Power 1 - 3	24 DO*	P2M2HBVL12400A13 / -SPC
			Class A - Power 4 - 2	24 DO*	P2M2HBVL12400A42 / -SPC
			Class A - Power 4 - 3	24 DO*	P2M2HBVL12400A43 / -SPC
			Class B - Power 2 - 5	24 DO*	P2M2HBVL12400B25 / -SPC
	Industrial Ethernet	IP20	Profinet IO	24 DO*	P2M2HBVN12400RJ
			EtherNet/IP	24 DO*	P2M2HBVE12400RJ
			EtherCAT	24 DO*	P2M2HBVT12400RJ
		IP65	Profinet IO	24 DO*	P2M2HBVN12400
			EtherNet/IP	24 DO*	P2M2HBVE12400
			EtherCAT	24 DO*	P2M2HBVT12400
			PowerLink	24 DO*	P2M2HBVW12400
			Modbus TCP/IP	24 DO*	P2M2HBVM12400
			CC-Link IE	24 DO*	Coming soon

*) Only the first 19 DO usable with Moduflex Valve

Electrical multi-connector head module

	Description		Protection	Cable length	
	Guillotine type	Multi-connection head module			P2M2HEV0A
		Guillotine connector with flying leads multi-cable	IP65	2 m	P8LMH20M2A
				5 m	P8LMH20M5A
				9 m	P8LMH20M9A
	Standard Sub-D 25 type	Multi-connection head module			P2M2HEV0D
		Sub-D 25 connector with flying leads multi-cable	IP40	3 m	P8LMH25M3A
				9 m	P8LMH25M9A
			IP65	9 m	P8LMH25B9A

Island head and intermediate module sets

		Size 2	
		V series	T series
	Valve island pneumatic head and tail module set	P2M2HXT01	P2M2HXT01
	Valve island intermediate supply module with a set of 4 configuration plates	P2M2BXV0A	P2M2BXT0A

Electrical connectors

	Description	Connector type	Cable length	
	Individual lockable connector – IP67 Including LED and surge protection 2 Flying leads	M8 / 2 x Flying leads	2 m	P8LS08L226C
			5 m	P8LS08L526C
			9 m	P8LS08L926C
	Clip connector – IP40 Individual : Including 2 flying leads Multiple : Including 1 common (0 Vdc) and 1 flying lead per connector	1 x Clip connector	1 m	P8LW021C
		2 x Clip connectors	1 m	P8LW021C02
		4 x Clip connectors	1 m	P8LW021C04
		8 x Clip connector	1 m	P8LW021C08
	Straight cable quick connect to thread connector, IP67 protected	M8		P8CS0803J
		M12		P8CS1204J
	« Y » shape	M12 Male - 2 x M12 Female		P8CSY1212A

2

150 Nl/mn — 25mm
400 Nl/mn — 25mm
1200 Nl/mn — 37.5mm

24 V ⎓ P= - 0.9 bar / +8 bar



Parker Worldwide

Europe, Middle East, Africa

AE – United Arab Emirates, Dubai
Tel: +971 4 8127100
parker.me@parker.com

AT – Austria, Wiener Neustadt
Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe, Wiener Neustadt
Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AZ – Azerbaijan, Baku
Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles
Tel: +32 (0)67 280 900
parker.belgium@parker.com

BG – Bulgaria, Sofia
Tel: +359 2 980 1344
parker.bulgaria@parker.com

BY – Belarus, Minsk
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

CH – Switzerland, Etoy
Tel: +41 (0)21 821 87 00
parker.switzerland@parker.com

CZ – Czech Republic, Klecany
Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst
Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup
Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid
Tel: +34 902 330 001
parker.spain@parker.com

FI – Finland, Vantaa
Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve
Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens
Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budaörs
Tel: +36 23 885 470
parker.hungary@parker.com

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IL – Israel
Tel: +39 02 45 19 21
parker.israel@parker.com

IT – Italy, Corsico (MI)
Tel: +39 02 45 19 21
parker.italy@parker.com

KZ – Kazakhstan, Almaty
Tel: +7 7273 561 000
parker.easteurope@parker.com

NL – The Netherlands, Oldenzaal
Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Asker
Tel: +47 66 75 34 00
parker.norway@parker.com

PL – Poland, Warsaw
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal
Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest
Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow
Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga
Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SL – Slovenia, Novo Mesto
Tel: +386 7 337 6650
parker.slovenia@parker.com

TR – Turkey, Istanbul
Tel: +90 216 4997081
parker.turkey@parker.com

UA – Ukraine, Kiev
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

UK – United Kingdom, Warwick
Tel: +44 (0)1926 317 878
parker.uk@parker.com

ZA – South Africa, Kempton Park
Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

North America

CA – Canada, Milton, Ontario
Tel: +1 905 693 3000

US – USA, Cleveland
Tel: +1 216 896 3000

Asia Pacific

AU – Australia, Castle Hill
Tel: +61 (0)2-9634 7777

CN – China, Shanghai
Tel: +86 21 2899 5000

HK – Hong Kong
Tel: +852 2428 8008

IN – India, Mumbai
Tel: +91 22 6513 7081-85

JP – Japan, Tokyo
Tel: +81 (0)3 6408 3901

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NZ – New Zealand, Mt Wellington
Tel: +64 9 574 1744

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Tel: +65 6887 6300

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Tel: +662 186 7000

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Tel: +886 2 2298 8987

South America

AR – Argentina, Buenos Aires
Tel: +54 3327 44 4129

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European Product Information Centre
Free phone: 00 800 27 27 5374
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