

# numatics®

## 503 Series

Solenoid Pilot Actuated Valves



[www.numatics.com](http://www.numatics.com)



**Numatics, Inc. is a leading manufacturer of pneumatic products and motion control products.** Our broad spectrum of standard, custom developed products and application components, have made a significant impact on pneumatic innovation as well as pneumatic and motion control technology. Our company has an extensive history of generating innovative concepts and technological breakthroughs. Many of today's standard features in pneumatic technology were industry firsts from Numatics. We continue our innovative approach to product development by developing electric motion control solutions and enhancing our embedded Fieldbus and I/O products to continually meet and solve our customer's application requirements.



**Today Numatics is proud to be a part of the Industrial Automation Division of Emerson Electric Co.**

Emerson (NYSE:EMR), based in St. Louis, Missouri (USA), is a global leader in bringing technology and engineering together to provide innovative solutions for customers in industrial, commercial, and consumer markets through its network power, process management, industrial automation, climate technologies, and appliance and tools businesses. For more information, visit [www.Emerson.com](http://www.Emerson.com).





Numatics Express Shipping  
Program guarantees<sup>†</sup> product shipment in two,

three or five business days. Unlike most traditional quick ship programs, the Numatics Express Shipping Program includes the most comprehensive offering in the industry. This program encompasses the range and options that you require!

Numatics is committed to offering you the highest level of customer service, quality and performance.

The graphic for the 2Day shipping program features a large, bold, blue number "2" followed by the word "DAY" in a lighter, grey, sans-serif font.

Numatics Express 2 Day shipping program guarantees<sup>†</sup> product shipment in two business days. The program includes the most popular valve, air preparation and actuator products and includes applicable switches and mounting accessories.

Numatics guarantees<sup>†</sup> to ship any order received before 3 pm EST for up to 10 2Day products\* in two business days. Saturdays, Sundays, and Holidays are excluded. Numatics Express orders cannot be cancelled or adjusted once entered.

The graphic for the 3Day shipping program features a large, bold, blue number "3" followed by the word "DAY" in a lighter, grey, sans-serif font.

Numatics Express shipping program offers a 3Day shipping program that guarantees<sup>†</sup> product shipment of a fully assembled and tested valve manifold in 3 business days. The program includes the most popular manifold configurations of the 2000 and Mark series valves:

- Sub D, Terminal Strip and Fieldbus Electronic Options
- Can be configured for Din Rail Mounting and Muffled Exhaust
- Shipped complete and 100% tested

The 3Day Express shipping program enables you to create a 2 to 8 station manifold assembly complete with any combination of valves, regulators, and blank stations that can be configured from the valve model charts in this catalog.

Numatics guarantees<sup>†</sup> to ship any order received before 3 pm EST for up to 5 manifold assemblies configured from this catalog in three business days or Numatics pays the shipping cost. Saturdays, Sundays, and Holidays are excluded.

The graphic for the 5Day shipping program features a large, bold, blue number "5" followed by the word "DAY" in a lighter, grey, sans-serif font.

We are pleased to expand Numatics Express to include a broad range of products in a 5Day shipping program. Numatics guarantees<sup>†</sup> to ship up to 10 of any 5Day product for orders received before 3 pm EST in 5 business days or Numatics pays the shipping cost. Saturdays, Sundays, and Holidays are excluded. Numatics Express orders cannot be cancelled or adjusted once entered.

We are committed to providing you with an unmatched level of customer service, quality, and reliability. If you cannot locate the specific product for your application or need additional product specifications, visit [www.numatics.com](http://www.numatics.com) or call 888-686-2842.

<sup>†</sup>As industry requirements change, Numatics reserves the right to modify the contents of this catalog and program without notification. Updates on this program can be obtained from the Numatics website [www.numatics.com](http://www.numatics.com) or by calling 888-686-2842, or by contacting your local Numatics representative or distributor and referencing the Numatics Express program.

\*CGT Compact Slides and Air Bellows are limited to orders up to 5.

## Welcome to the World of Fluid Automation...

Since 1945, Numatics has emerged as the prominent specialist in developing and manufacturing pneumatic and fluid power components for a widely diverse field of automated industry. From idea to implementation, leading engineers choose Numatics as their single source for:

- Quality Fluid Power components
- Technologically advanced design resources
- Quick response time in delivery and service from around the world

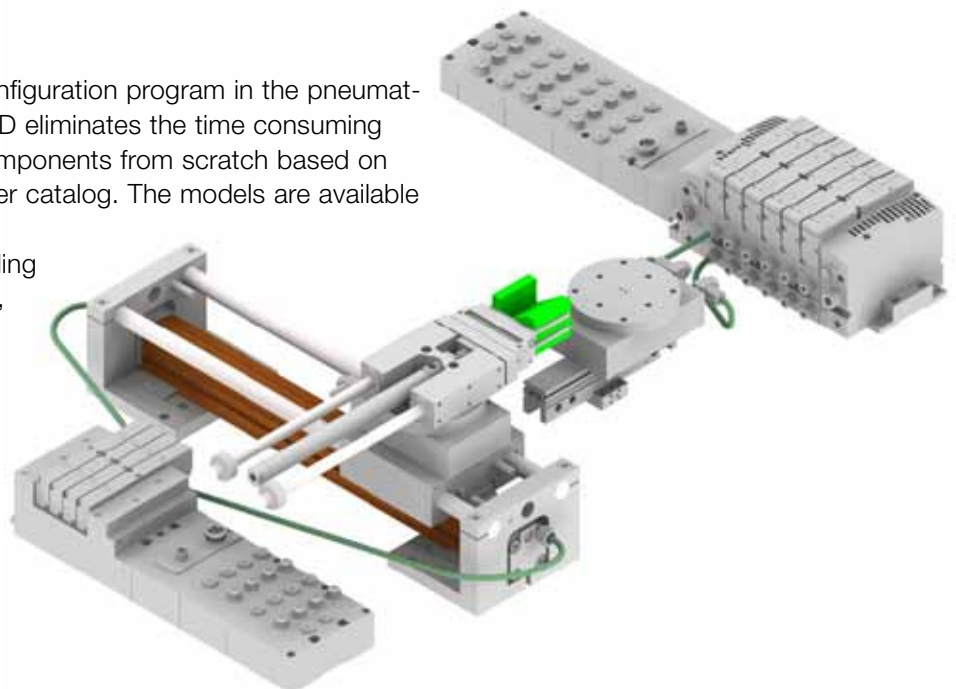


### Numasizing

Developed by Numatics, Numasizing offers a whole new level of fluid power system optimization. Compare large amounts of component and process data against user objectives and industry benchmarks for the best possible size, pneumatic pressure, actuator stroke velocities and other part and process variable determinations.

### CAD Modeling

Save critical development time with the most innovative CAD configuration program in the pneumatic component industry. Numatics in 3D eliminates the time consuming process associated with designing components from scratch based on information found in conventional paper catalog. The models are available in 85 different native CAD formats in 2D drawings and 3D models, including all the popular formats including Catia, I-DEAS, Pro/Engineer, SolidWorks, Unigraphics and more.



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## Assembly Kits

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25 or 37 Pin Sub-D	60
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19 Pin Round Connector	61



5 Ported, 2 and 3 position, 4-way, Spool & Sleeve and Rubber Seal, Cv: 1.2 - 1.4

- Solenoid air pilot actuated
- Low wattage – 1.7 watt for DC application
- DC solenoids polarity insensitive with surge suppression
- Plug together circuit boards eliminate internal wiring
- Integral recessed gaskets
- IN Fittings to accommodate various tube sizes
- Simple conversion from internal to external pilot
- G3 Fieldbus electronics
- IP65 Certified



## Performance Data

Valve Data	Min.	Max.
Pilot Pressure Range	29 PSI (2 Bar)	115 PSI (8 Bar)
Valve Operating Pressure Range	28" HG Vacuum	115 PSI (8 Bar)
Ambient Temperature Range	- 10°C (- 14°F)	50 °C (122 °F)

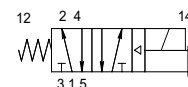
Valve Flow Data	ISO		Proprietary	
	Cv	NL/m (6 - 5 Bar)	Cv	NL/m (6 - 5 Bar)
5/2, Double Solenoid & Single Solenoid, Spring Return (Spool & Sleeve)	1.1	1100	1.2	1200
5/2, Double Solenoid & Single Solenoid, Spring Return (Rubber Seal)	1.2	1200	1.4	1400
2X 3/2 NC-NC	0.9	900	1.0	1000
2X 3/2 NO-NO	0.9	900	1.0	1000
Double Solenoid, 3 pos. 4 way, Spring Centered- Open to 4 and 2 in center	0.6	600	0.6	600
Double Solenoid, 3 pos. 4 way, Spring Centered - Open Center	1.1	100	1.3	1300
Double Solenoid, 3 pos. 4 way, Spring Centered - Closed Center	1.2	1200	1.4	1400

## Operating Data

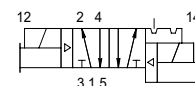
<b>All Solenoids Are Continuous Duty Rated</b>	<b>24 VDC</b>
Power (Watts)	1.7
Holding Current (Amps.)	0.10

Response Time (ms)	Spool & Sleeve		Rubber Seal	
	Energize	Deenergize	Energize	Deenergize
5/2, Single Solenoid, Spring Return	20	60	20	60
5/2, Double Solenoid	15	N/A	20	N/A
5/3 Spring Centered	–	–	15	20
2x3/2 NC	–	–	15	25
2 X3/2 NO	–	–	15	20

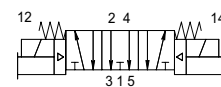
single solenoid air pilot  
2 position 4-way



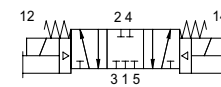
double solenoid air pilot  
2 position 4-way



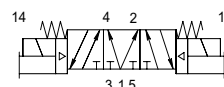
double solenoid air pilot  
3 position 4-way  
open center



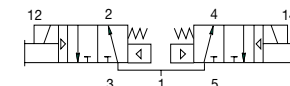
double solenoid air pilot  
3 position 4-way  
closed center



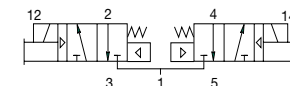
double solenoid air pilot  
3 position 4-way  
pressure center



double solenoid  
2 position dual 3-way  
"14" & "12" NO

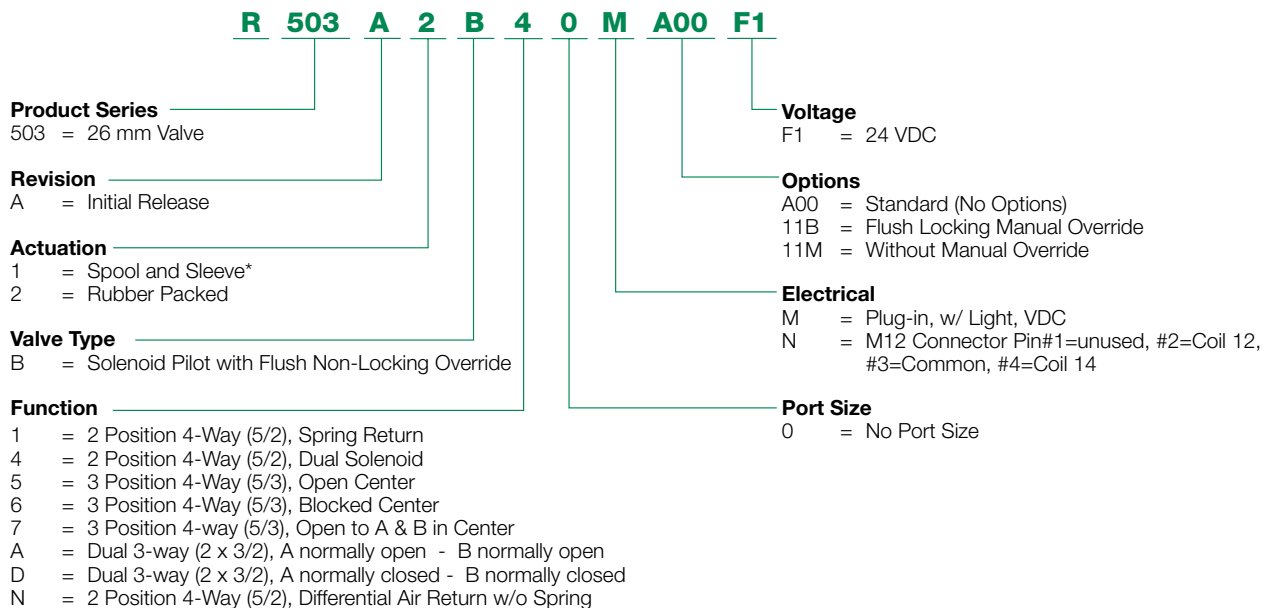


double solenoid  
2 position dual 3-way  
"14" & "12" NC



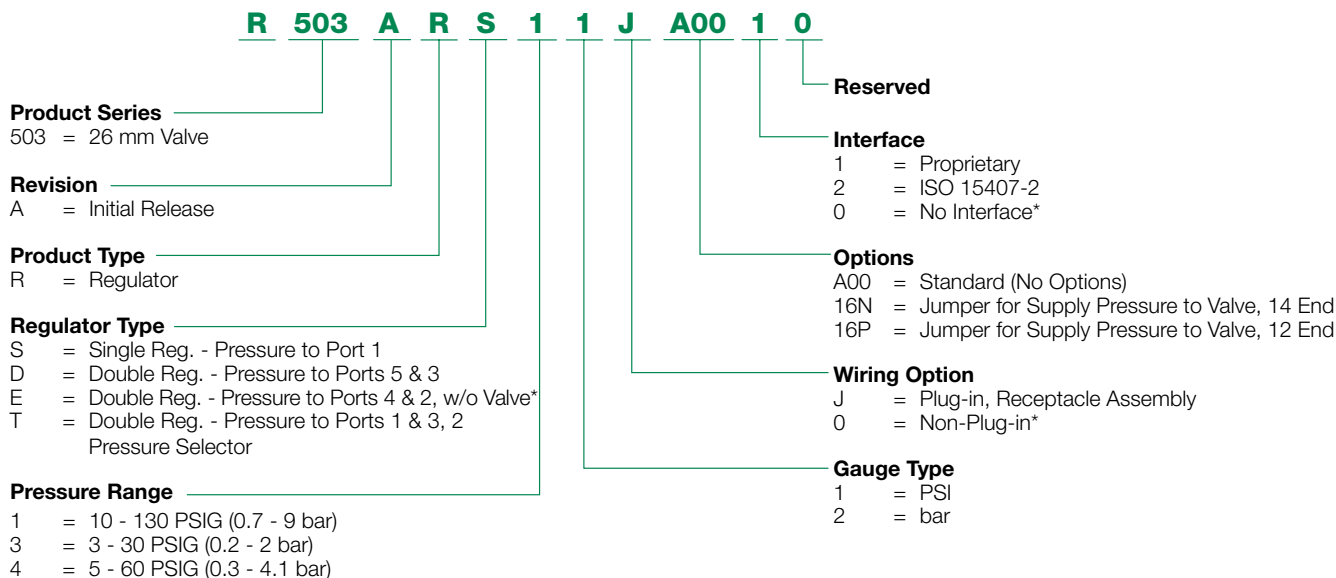
## How to Order

### Valves



\*Available with Functions 1 + 4 only

### Regulators



\*For Regulator Type "E" must select 'O' wiring option + 'O' Interface

## Sandwich Pressure Regulators

Types: RS / RD / RE / RT

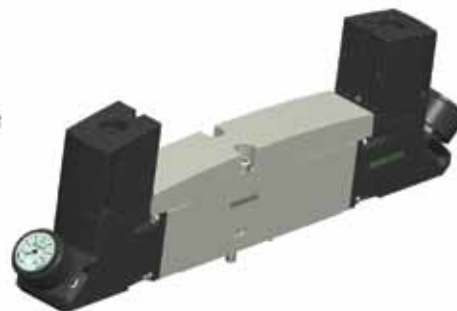
503 Series



ISO 15407-2 Interface

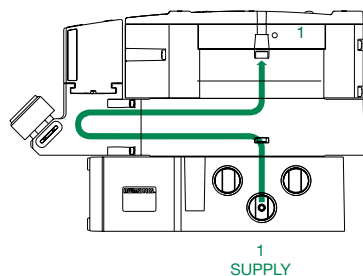


Proprietary Interface

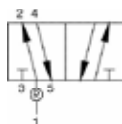


External Outlet Regulator

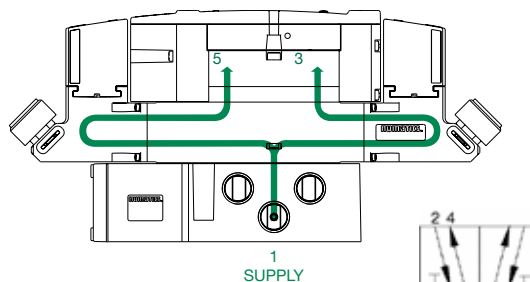
### Type RS



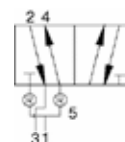
Single pressure from a single supply.



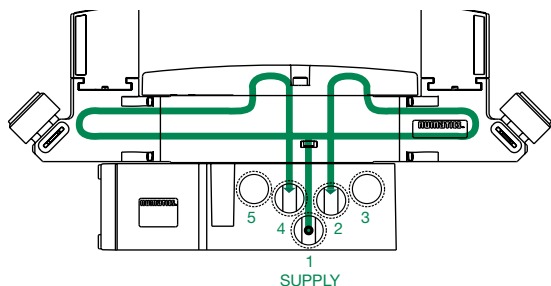
### Type RD



Dual pressure from a single supply.

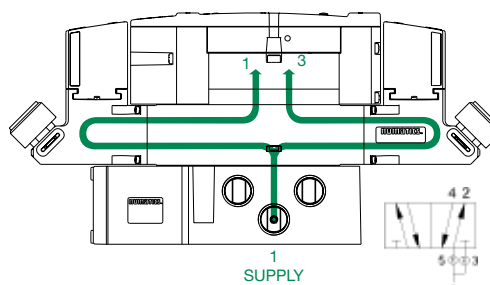


### Type RE



External outlet regulator used with jumper plate for single or dual pressure.

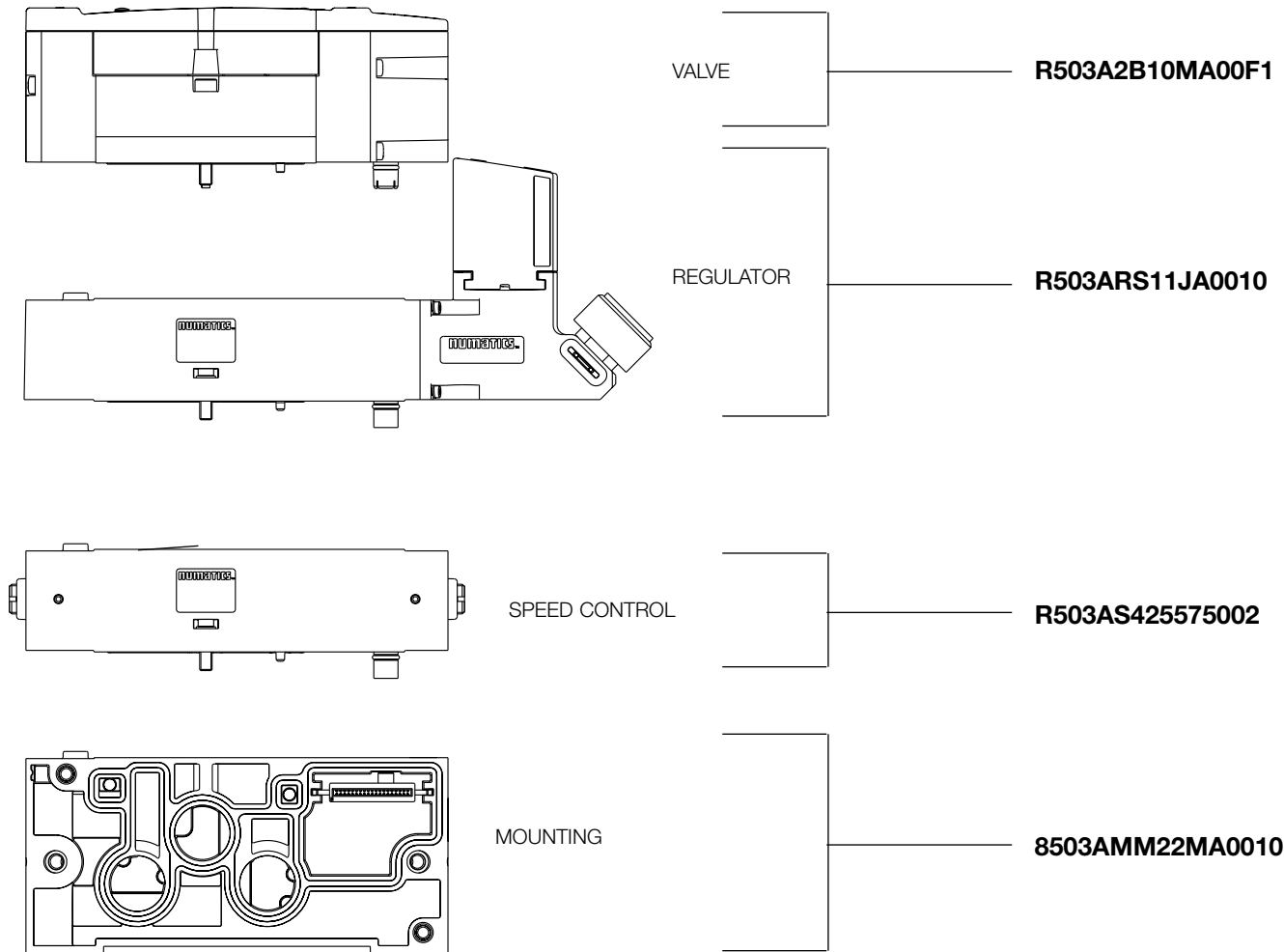
### Type RT



Two-pressure selector used for multi-pressure applications.

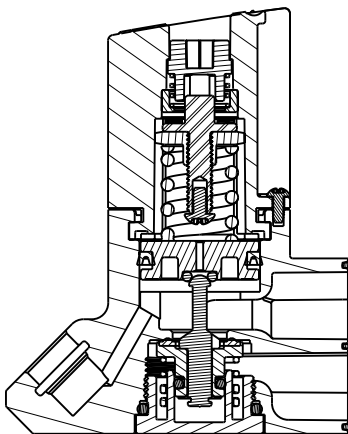


## Valve Regulator / Speed Control Plug-in Assembly



## Regulator Kits and Service Parts

### Regulator Service Kit



### Regulator Unit Kits

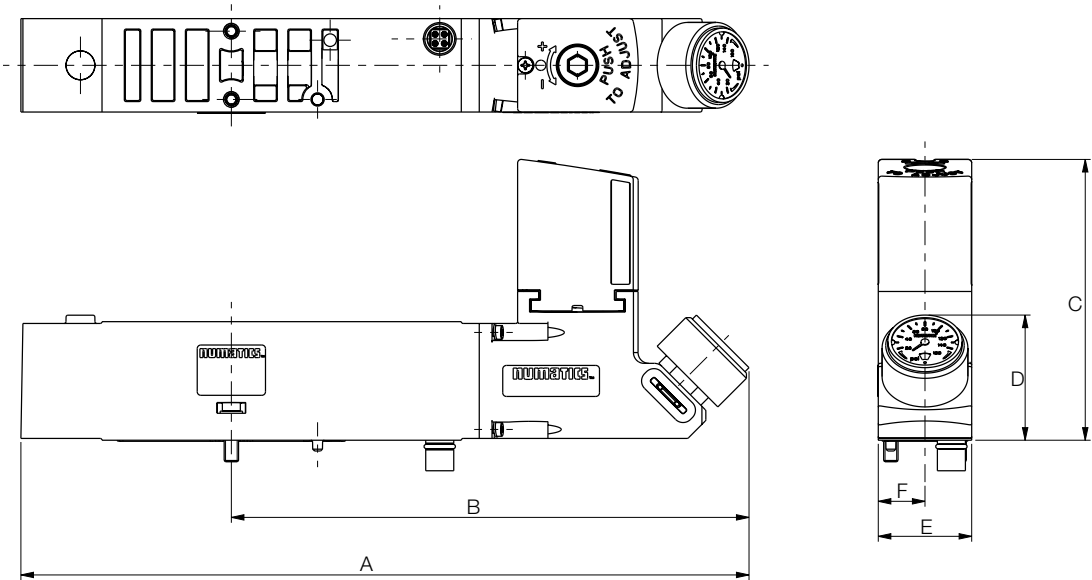
(includes regulator assembly, gaskets, screws)

Part Number	Description
M503AR428759001	3-30 PSIG Regulator Kit
M503AR428759002	5-60 PSIG Regulator Kit
M503AR428759003	10-130 PSIG Regulator Kit
M503AR428759004	0.2-2.0 Bar Regulator Kit
M503AR428759005	0.3-4.0 Bar Regulator Kit
M503AR428759006	0.7-9.0 Bar Regulator Kit

Sandwich Pressure Regulator

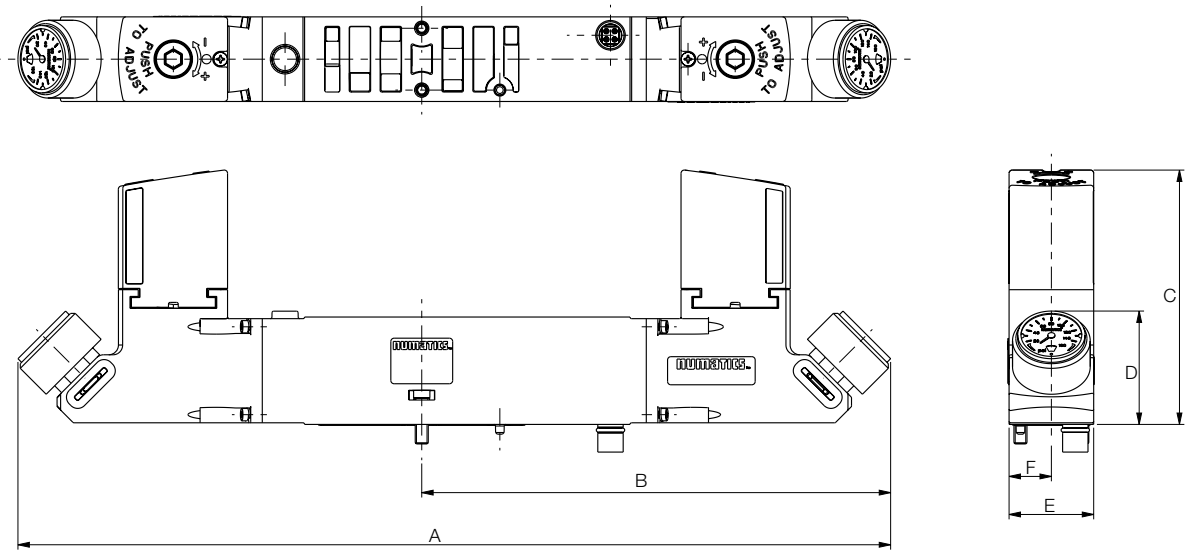
Dimensions: mm (Inches)

Single Regulator



A	B	C	D	E	F
202.7 (7.98)	144.1 (5.673)	78.2 (3.08)	34.8 (1.37)	26 (1.02)	13 (0.51)

Double Regulator



A	B	C	D	E	F
268.2 (10.56)	144.1 (5.673)	78.2 (3.08)	34.8 (1.37)	26 (1.02)	13 (0.51)

## How to Order

### Manifold Assemblies and Individual Bases

8	503	A	M	S2	2	M	A00	1	0	
										<b>Reserved</b>
										<b>Interface</b>
										1 = Proprietary
										2 = ISO 15407-2
										3 = ISO 15407-1
										<b>Options</b>
										A00 = Standard (No Options)
										14X = External Pilot Supply from Port # 14*3
										56Y = 4-Pin Straight M12 Connector in Mounting*3
										Pin 1= Not Used; 2= 12+(B+); 3 = COM; 4=14+(A+)
										59W = 14X + 56Y*3
										<b>Wiring Option</b>
										M = Plug-in, Receptacle Assembly*5
										0 = Non-Plug-in*2
										<b>Port Size</b>
										2 = 1/4
										3 = 3/8
										H = 8 mm
										K = 10 mm

#### Port Type

8 = NPTF\*1  
G = ISO228/1-G\*1  
K = Push-in Fittings

#### Product Series

503 = 26 mm Valve

#### Revision

A = Initial Release

#### Product Type

M = Manifold Base  
A = Individual Base  
Z = Mid Station Supply\*4

#### Mounting

S2 = Manifold Base, 2 Stations, Side Ports, Single Z-Board  
M2 = Manifold Base, 2 Stations, Side Ports, Double Z-Board  
V2 = Manifold Base, 2 Stations, Side Ports\*2  
3A = Individual Base, Side Ports, Individual Exhaust\*6

\*1 Port Type '8' + 'G' only available in 1/4 size

\*2 Only available with ISO 15407-1 Interface

\*3 Available with 3A mounting only

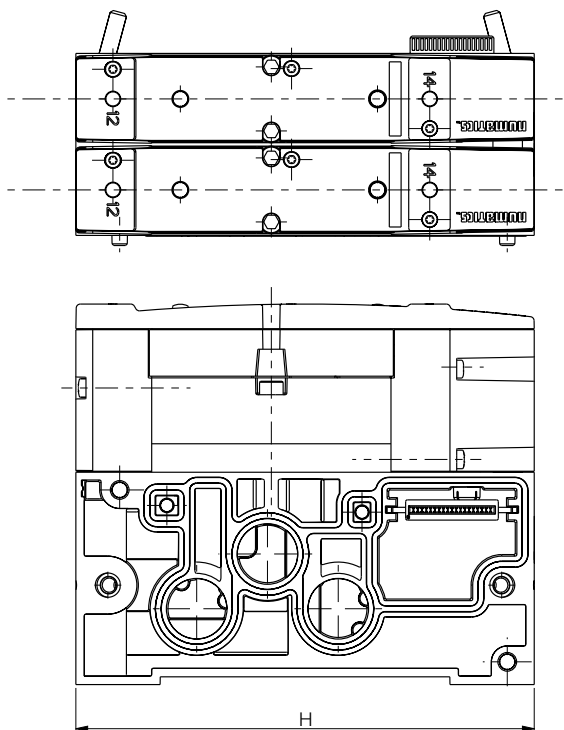
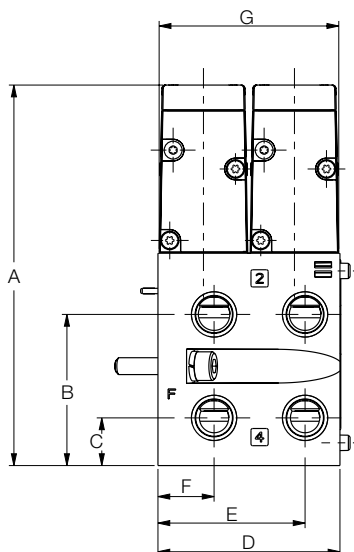
\*4 Only available with M2 and V2 mountings

\*5 Not available with V2 mounting

\*6 Not available with proprietary mounting

## Dimensions: mm (Inches)

### Plug in Valve Mounted

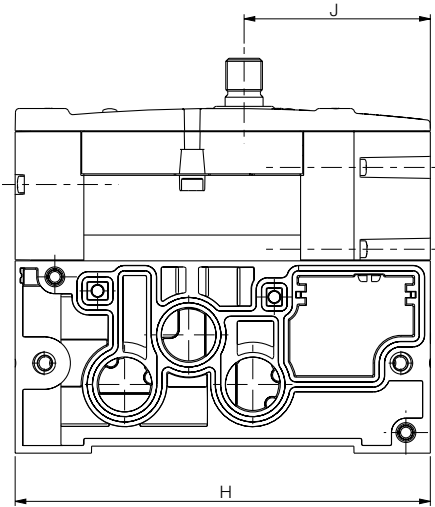
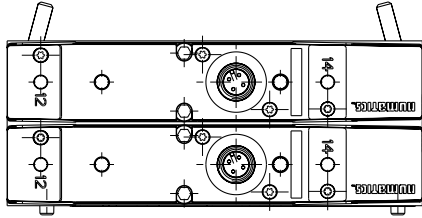
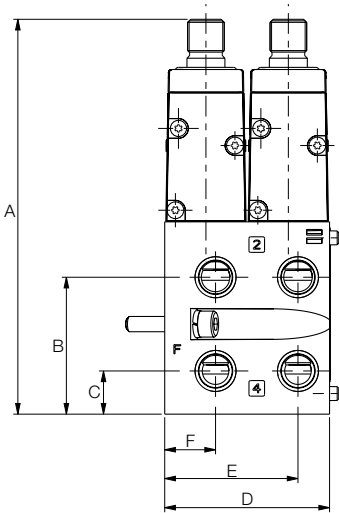


A	B	C	D	E	F	G	H
112.9 (4.445)	44.9 (1.768)	14.2 (0.56)	54 (2.13)	43.7 (1.72)	16.7 (0.66)	53.3 (2.098)	136 (5.35)

Dimensions: mm (Inches)

M12 Valve Mounted

503 Series



A	B	C	D	E	F	G	H	J
129.4 (5.094)	44.9 (1.768)	14.2 (0.56)	54 (2.13)	43.7 (1.72)	16.7 (0.66)	53.3 (2.098)	136 (5.35)	61 (2.4)

Individual Base Assembly Kit



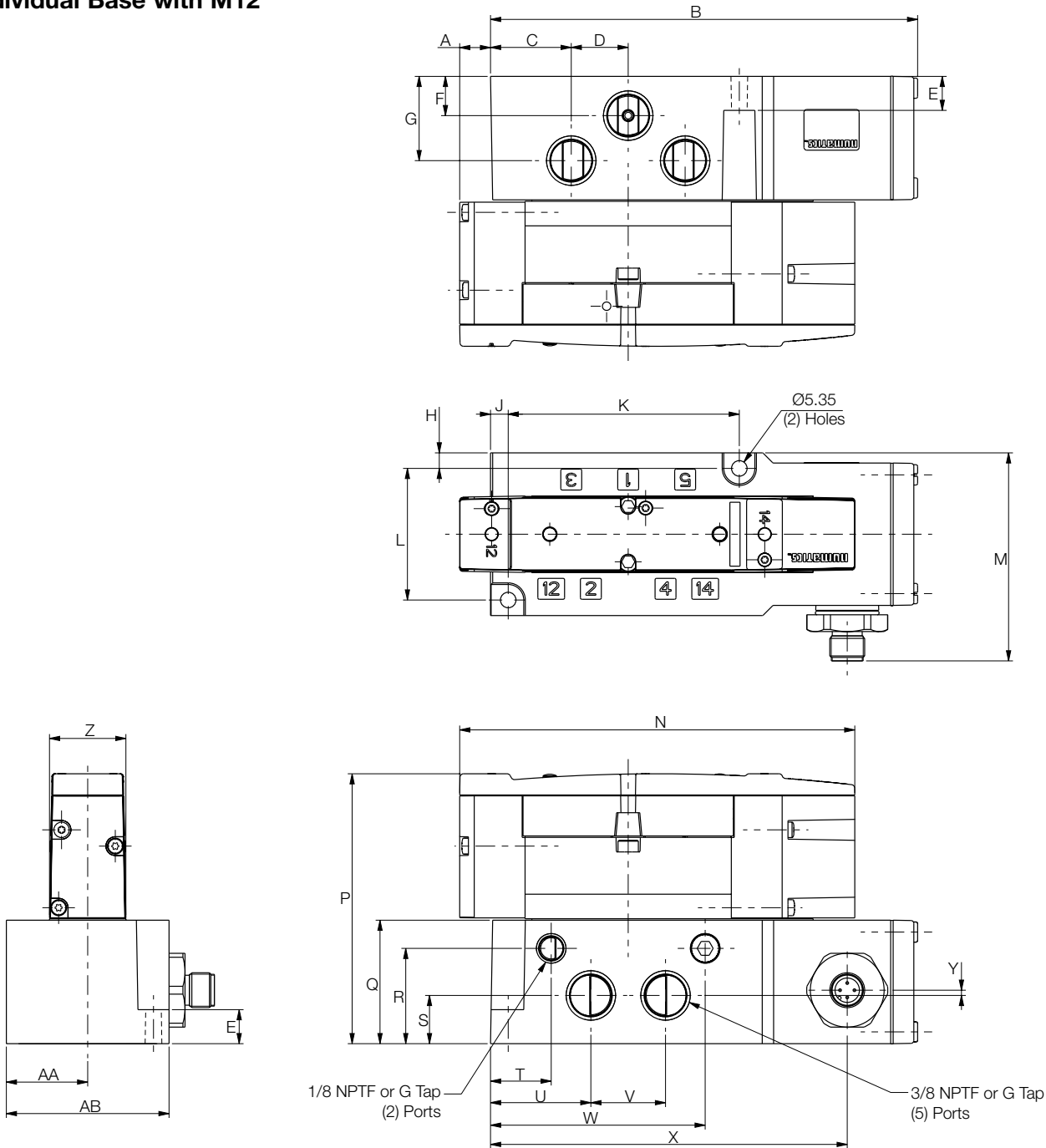
Internal/External Pilot Selection

Note: Base assemblies are supplied set up for internal pilot supply. To convert to external pilot supply install plug P.N. 127-691 (sold separately) in the pressure port (1). Remove the 1/8 pipe plug from port 14 to supply pilot pressure.

## Valve on Individual Base

Dimensions: mm (Inches)

### Individual Base with M12



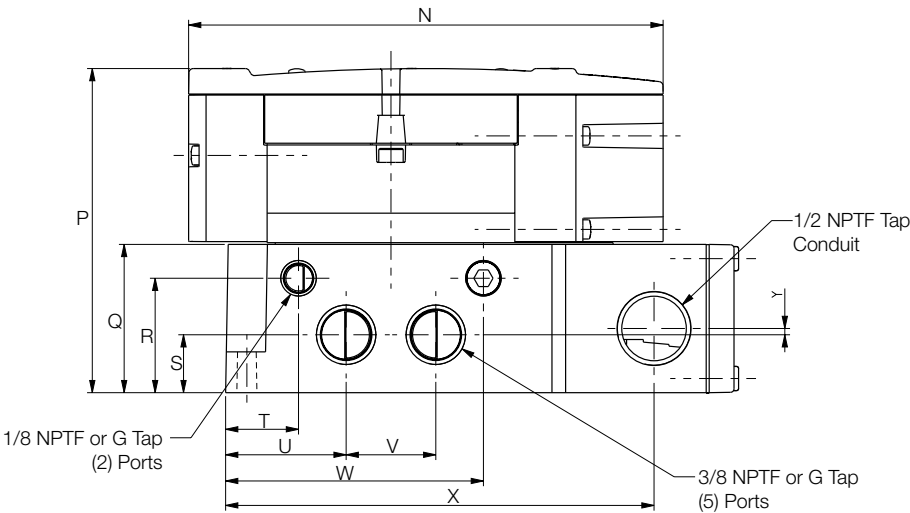
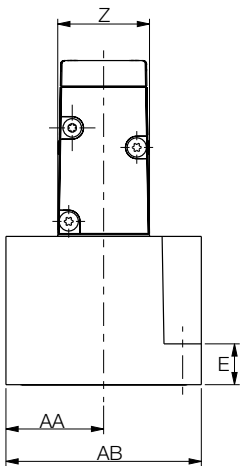
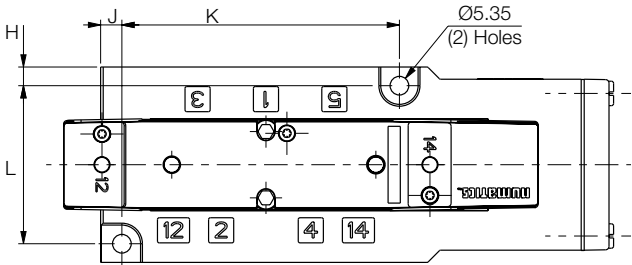
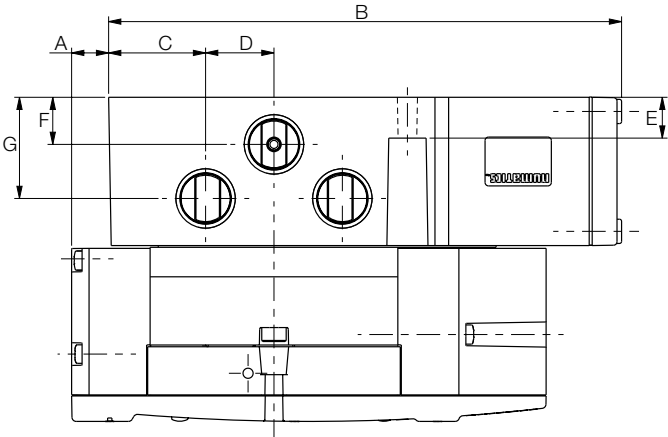
A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
10.6 (0.417)	147 (5.787)	27.8 (1.09)	19.6 (0.77)	11.7 (0.46)	13.5 (0.53)	29 (1.142)	5.4 (0.21)	6.1 (0.24)	79.6 (3.13)	45.3 (1.78)	71.6 (2.819)	136 (5.35)	92.9 (3.657)	42.5 (1.67)	32.8 (1.29)

S	T	U	V	W	X	Y	Z	AA	AB
16.6 (0.65)	20.9 (0.82)	34.5 (1.36)	25.7 (1.01)	73.9 (2.91)	122.8 (4.835)	1.8 (0.071)	26.3 (1.04)	28 (1.1)	56 (2.2)

Valve on Individual Base

Dimensions: mm (Inches)

Plug In Base



A	B	C	D	E	F	G	H	J	K	L	N	P	Q	R
10.6 (0.417)	147 (5.787)	27.8 (1.09)	19.6 (0.77)	11.7 (0.46)	13.5 (0.53)	29 (1.142)	5.4 (0.21)	6.1 (0.24)	79.6 (3.13)	45.3 (1.78)	136 (5.35)	92.9 (3.657)	42.5 (1.67)	32.8 (1.29)

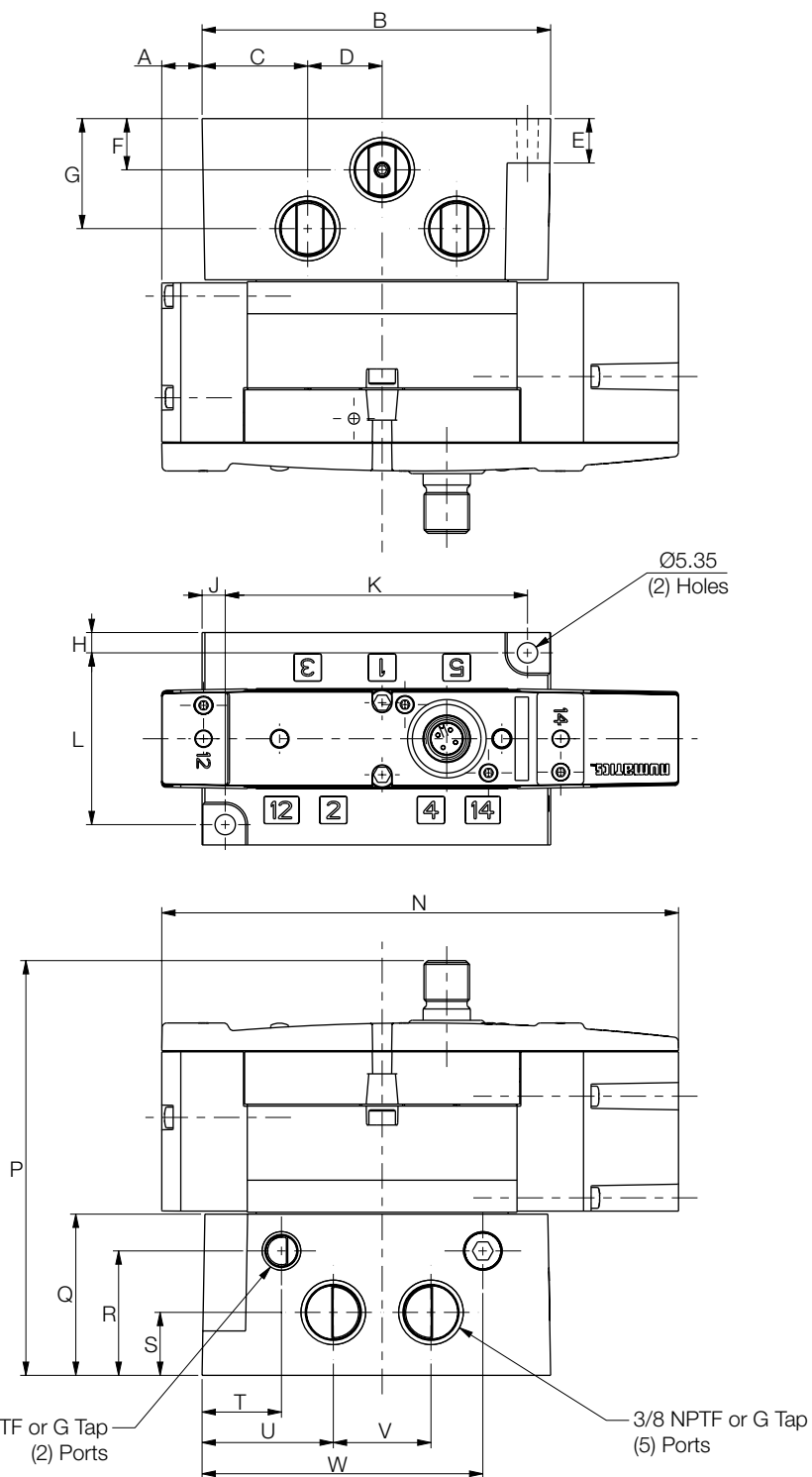
S	T	U	V	W	X	Y	Z	AA	AB
16.6 (0.65)	20.9 (0.82)	34.5 (1.36)	25.7 (1.01)	73.9 (2.91)	1.8 (0.071)	26.3 (1.04)	28 (1.1)	56 (2.2)	56



## Valve on Individual Base

Dimensions: mm (Inches)

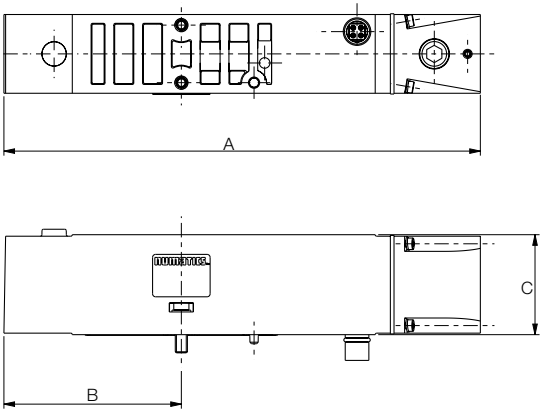
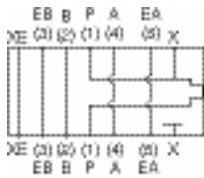
### Non Plug In Base



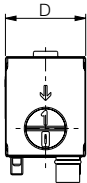
A	B	C	D	E	F	G	H	J	K	L	N	P	Q	R	S	T	U	V	W	Z	AA	AB
10.6 (0.417)	91.7 (3.61)	27.8 (1.09)	19.6 (0.77)	11.7 (0.46)	13.5 (0.53)	29 (1.142)	5.4 (0.21)	6.1 (0.24)	79.6 (3.13)	45.3 (1.78)	136 (5.35)	109.4 (4.307)	42.5 (1.67)	32.8 (1.29)	16.6 (0.65)	20.9 (0.82)	34.5 (1.36)	25.7 (1.01)	73.9 (2.91)	26.3 (1.04)	28 (1.1)	56 (2.2)

Sandwich Shut Off Block

- Used to shut-off pressure when mounted below valve.
- Allows easy maintenance without the need to shut-off pressure to the entire manifold.



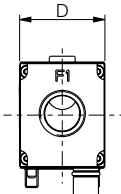
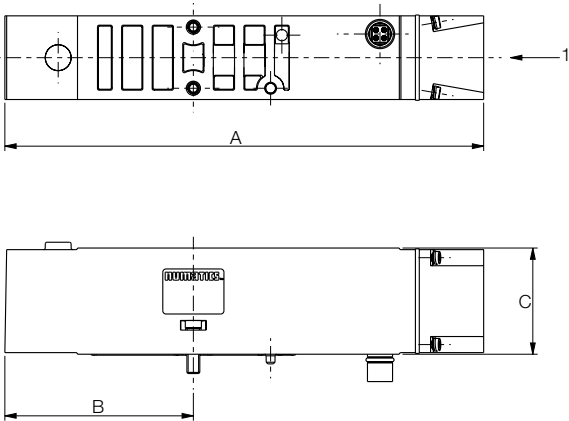
Part Number	Description
R503AY426707002	Proprietary Sandwich Shut Off Kit
R503AY426707001	ISO 15407-2 Sandwich Shut Off Kit



Dimensions: mm (Inches)			
A	B	C	D
157.3 (6.193)	58.6 (2.307)	33 (1.3)	26.5 (1.04)

Sandwich Pressure Block

- Used to supply a separate pressure to a single valve station without needing blocking disks.

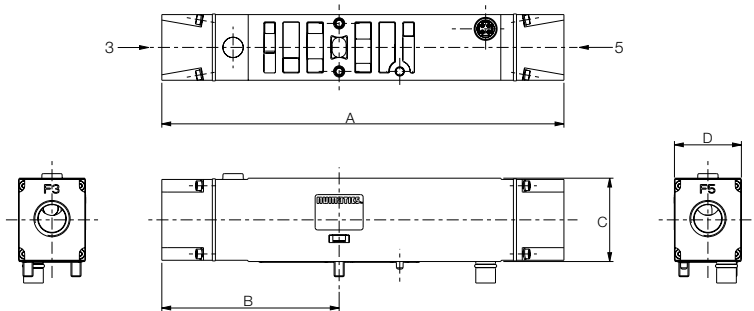


Sandwich Pressure Block Kit

Part Number	Port Type	Description
8503AW428300004	1/4 NPTF	Proprietary Sandwich Pressure Block
G503AW428300004	G 1/4	Proprietary Sandwich Pressure Block
8503AW428300003	1/4 NPTF	ISO 15407-2 Sandwich Pressure Block
G503AW428300003	G 1/4	ISO 15407-2 Sandwich Pressure Block

Dimensions: mm (Inches)			
A	B	C	D
148.8 (5.858)	58.6 (2.307)	33 (1.3)	26.5 (1.04)

## Sandwich Exhaust Block



- Used to isolate the exhaust of a single valve station from the manifold.
- Allows faster exhaust response by re-routing exhaust externally to the manifold.

### Sandwich Exhaust Block Kit

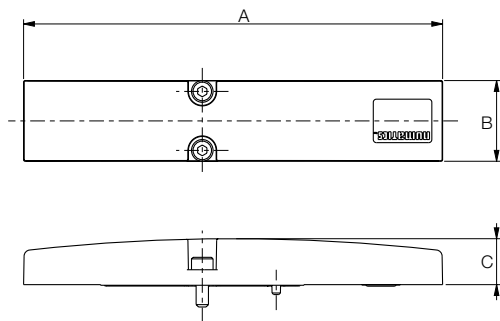
Part Number	Port Type	Description
8503AX428300002	1/4 NPTF	Proprietary Sandwich Exhaust Block
G503AX428300002	G 1/4	Proprietary Sandwich Exhaust Block
8503AX428300001	1/4 NPTF	ISO 15407-2 Sandwich Exhaust Block
G503AX428300001	G 1/4	ISO 15407-2 Sandwich Exhaust Block

### Dimensions: mm (Inches)

A	B	C	D
159.2 (6.268)	70.2 (2.764)	33 (1.3)	26.5 (1.04)

## Blank Station Plate Kit

### P503AB428359001

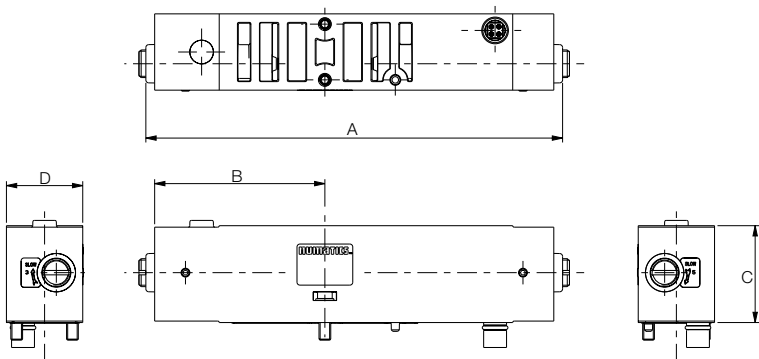


- Used to block off a manifold station block for future use

### Dimensions: mm (Inches)

A	B	C
136 (5.354)	26 (1.024)	14.8 (0.58)

## Speed Control Kit



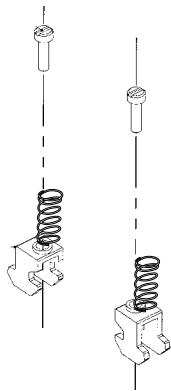
Part Number	Description
R503AS425575002	Proprietary Sandwich Speed Control
R503AS425575001	ISO 15407-2 Sandwich Speed Control

### Dimensions: mm (Inches)

A	B	C	D
142 (5.591)	58 (2.283)	33 (1.3)	26 (1.02)

DIN Rail Clamp Kit

239-980



Blocking Disc Kits

(Includes tag to label ports blocked)

Ports	Part
1	P503A431191001
3	P503A431191002
5	P503A431191003
1 + 3	P503A431191004
1 + 5	P503A431191005
3 + 5	P503A431191006
1, 3, 5	P503A431191007

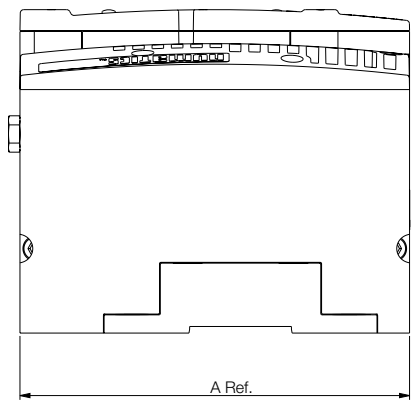
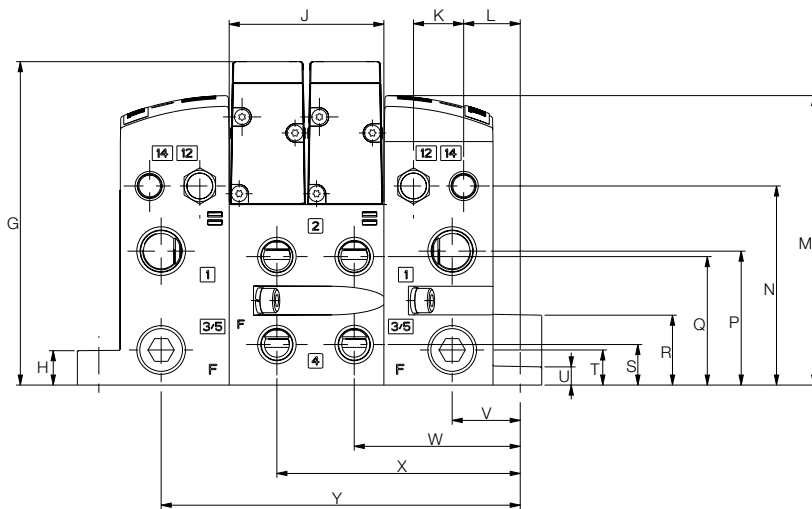
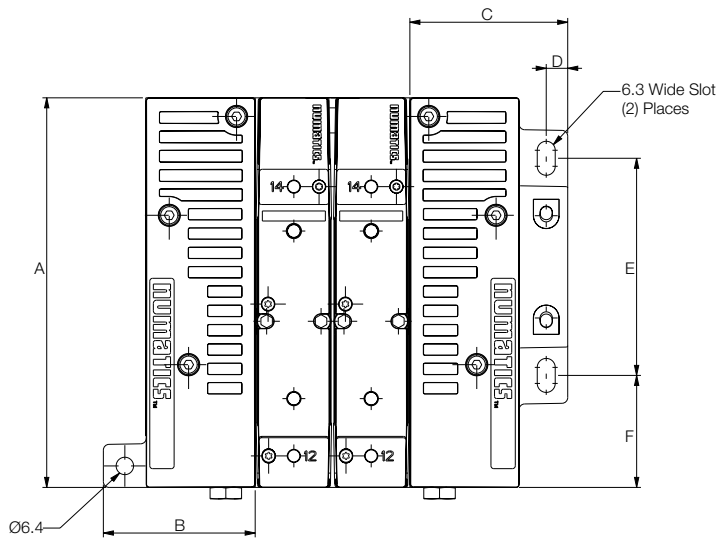
End Plate Kit - Threaded



Port Type	NPTF			G			PUSH IN			PUSH IN			PUSH IN			PUSH IN		
Port	1	3/5	X,XE	1	3/5	X,XE	1	3/5	X,XE	1	3/5	X,XE	1	3/5	X,XE	1	3/5	X,XE
Port Size	3/8	3/8	1/8	3/8	3/8	1/8	3/8	3/8	1/8	1/2	1/2	1/8	10mm	10mm	6 mm	12mm	12mm	6 mm
Vertical w/o muffler, w/o DIN	8503AK428327001			G503AK428327013			K503AK428327003			K503AK428327005			K503AK428327015			K503AK428327017		
Vertical w/o muffler, w/DIN	8503AK428327002			G503AK428327014			K503AK428327004			K503AK428327006			K503AK428327016			K503AK428327018		
Vertical w/muffler, w/o DIN	8503AK428327007			G503AK428327019			K503AK428327009			K503AK428327011			K503AK428327021			K503AK428327023		
Vertical w/muffler, w/DIN	8503AK428327008			G503AK428327020			K503AK428327010			K503AK428327012			K503AK428327022			K503AK428327024		
Horizontal, w/o muffler, w/o DIN	8503AK428304001			G503AK428304004			K503AK428304002			K503AK428304003			K503AK428304005			K503AK428304006		

## Manifold Assembly

Dimensions: mm (Inches)



A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y
136	53	55.1	7.5	75.8	39.1	112.9	12	54	17.5	19.8	101.1	69.5	46.8	44.9	24.4	14.2	12.3	6.4	23.8	58	85	125.4
(5.354)	(2.087)	(2.17)	(0.3)	(2.98)	(1.54)	(4.445)	(0.47)	(2.13)	(0.69)	(0.78)	(3.98)	(2.74)	(1.843)	(1.77)	(0.96)	(0.56)	(0.48)	(0.25)	(0.94)	(2.28)	(3.346)	(4.937)

Internal Pilot

Internal Pilot  
Supply Plug Location



External Pilot

For External Pilot  
Supply Plug Location



Internal Muffler

Muffler





# numatics®

## G3 Fieldbus

Electronics and I/O



G3 Electronics

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## G3 Fieldbus - Electronics Made Easy!

**Innovative Graphic Display is used for easy commissioning, visual status & diagnostics.**

### Commissioning Capabilities

- Set network address (including IP & Subnet mask for Ethernet)
- Set baud rate
- Set auto or manual I/O sizes
- Set fault/idle output states
- Set brightness
- Set factory defaults

### Visual Diagnostics

- Shorted and open load detection
- Shorted sensor/cable detection
- Low & missing power detection
- Missing module detection
- Self-test activation
- Log of network errors
- Distribution errors



Graphic Display for configuration & diagnostics



Auto Recovery Module



Highly Distributable



Easy, Robust Connections

## G3 Fieldbus Communications Electronics

Why use Numatics Fieldbus communication electronics?

### Modular Reality...

- No internal wiring simplifies assembly
- SPEEDCON M12 connector technology allows for fast and efficient 1/2 turn I/O connector attachment.
- Power connector allows output power to be removed while inputs and communication are left active.
- IP65 & IP67 protection
- Up to 1200 Input / 1200 Output capability with one communication node! (Present physical I/O combinations allows 1200 I / 544 O)
- 32 valve solenoids per manifold up to 17 manifolds per communication node!
- One node supports 16 I/O modules – Analog I/O, Digital I/O (NPN & PNP) and Specialty
- Innovative clip design allows easy module removal/replacement without dismantling manifold
- Auto Recovery Module (ARM) protects configuration information during a critical failure. Allows configuration information to be saved and reloaded to replacement module automatically.

### Supported Protocols

- DeviceNet™
- DeviceNet™ w/Quick Connect
- DeviceNet™ w/DeviceLogix™
- Ethernet
- PROFIBUS®-DP
- CANopen®
- PROFINET®
- POWERLINK



### \* Numatics I/O with SPEEDCON technology

- 1/2 turn for faster I/O connections
- Backwards compatible with standard M12 cables/connectors
- Meets the same IP/NEMA standards as M12/Micro cables/connectors
- Same cost as standard M12/Micro cables/connectors
- See pages 50 & 51 for cables with SPEEDCON connector technology

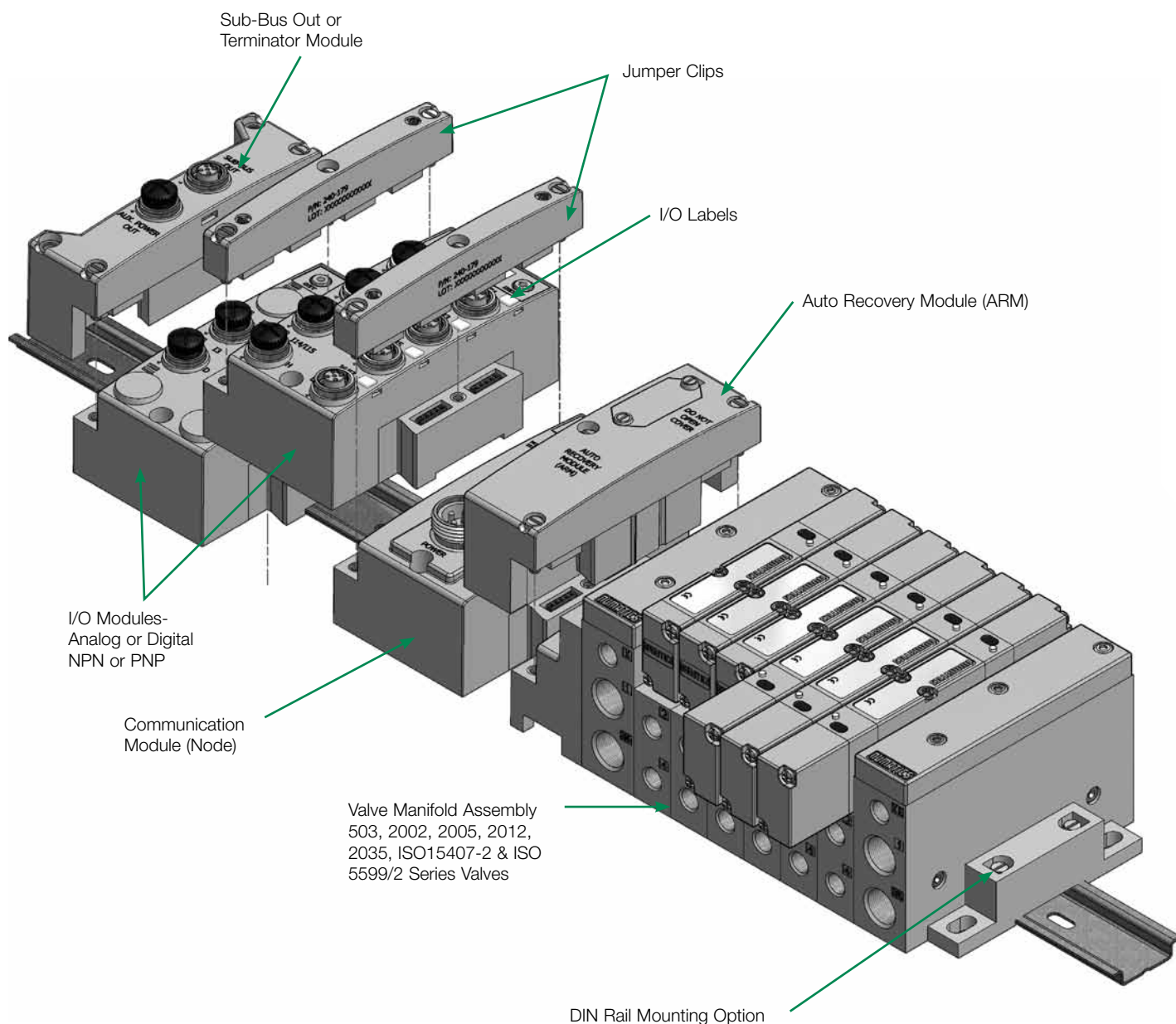


DeviceNet™ is a trademark of ODVA.  
ControlNet is a trademark of ControlNet International, Ltd.  
DeviceLogix is a trademark of Rockwell Automation.  
AS-interface is a registered trademark of AS-International.  
PROFIBUS and PROFINET are registered trademarks of Profibus International.  
POWERLINK is an Ethernet protocol under the control of EPSG (Ethernet Powerlink Standardization Group)  
EtherCAT is a registered trademark of Beckhoff Automation GmbH

## G3 Electronics Modularity

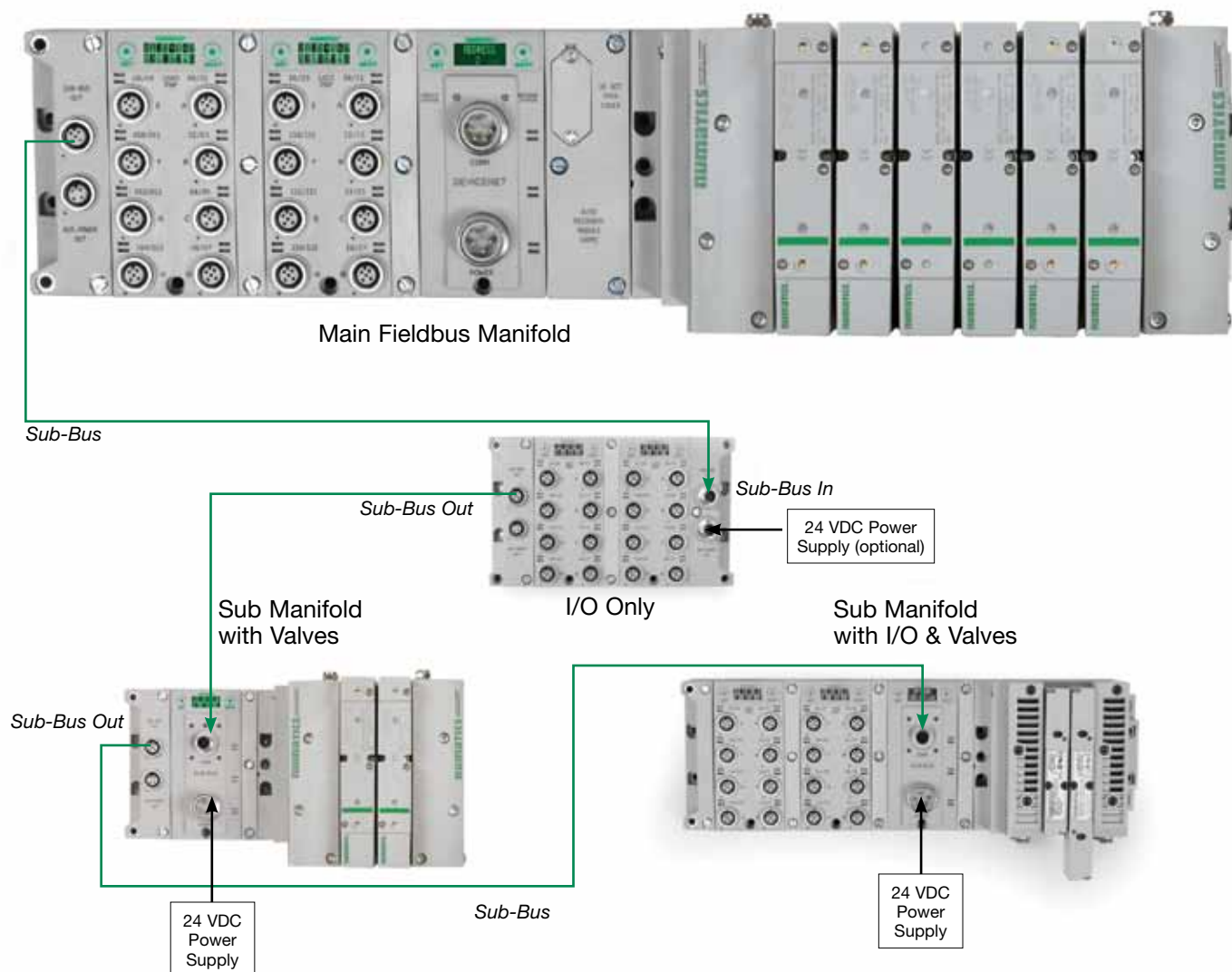
### Discrete I/O

The G3 Series product line is a completely modular system. All of the G3 electronic modules plug together, via mechanical clips, allowing easy assembly and field changes. This makes the system highly distributable. Additional flexibility is incorporated because the same modules can be used in either centralized or distributed applications. The G3 electronics interfaces with the highly modular Numatics 503 Series, generation 2000 Series, ISO 5599/2 and ISO 15407-2 Series valve lines to further enhance the modularity and flexibility of the entire system.



## G3 Platform Distribution Options

Easy, Cost Effective Solutions for Digital I/O and Valve Automation using G3 Electronics



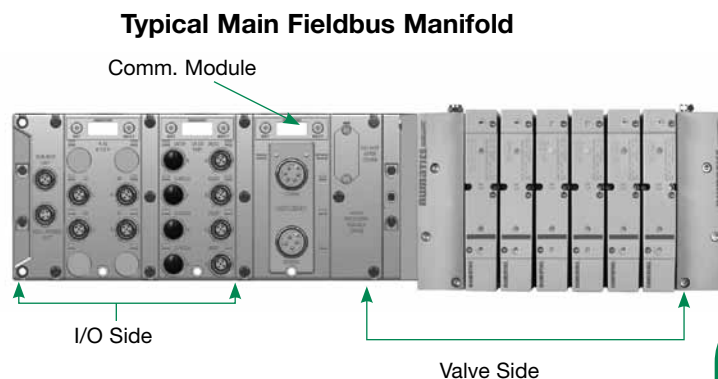
- Unique distribution system allows system efficiency by allowing the same modules to be used in either centralized or distributed applications
- Distribution options include:
  - Inputs OR Outputs
  - Inputs AND Outputs
  - Valves with Inputs AND Outputs
  - Valves with Inputs OR Outputs
  - Valves Only
- Maximum Sub-Bus length not to exceed 30 meters. Maximum Sub-Bus cable current not to exceed 4 amps or excessive cable voltage drops per segment. Auxiliary power connections available for currents above 4 amps. Consult factory for possible deviations.

## G3 Platform Distribution Options

The G3 platform is flexible to the point that there are a virtually infinite number of I/O distribution options using the few basic G3 modules. The following basic rules should be followed in the configuration of your control architecture.

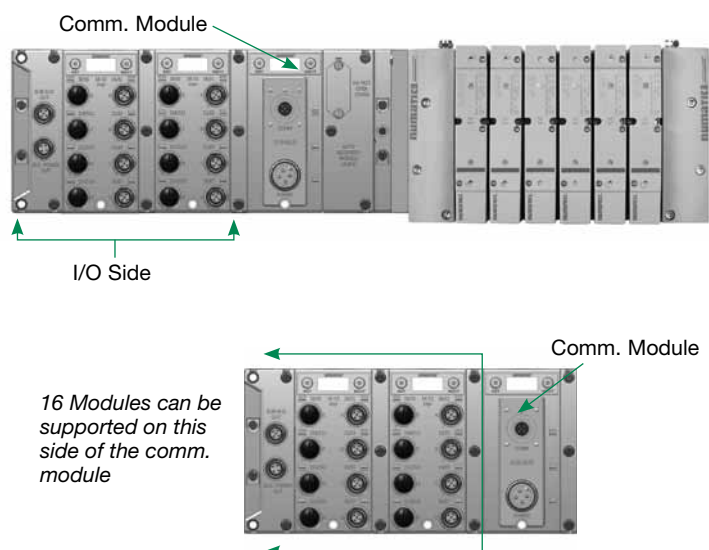
### Valve Side

- Up to a total of 32 valve solenoids can be driven in a manifold assembly integrated into the Main Fieldbus Manifold. This can be any number of single or double solenoid valves with a total number of solenoids not to exceed 32.
- A Valve side output module is available. If a valve side output module is used, 16 outputs are allocated to the solenoids in the integral manifold and 16 are allocated to the output module in the manifold.



### I/O Side Distribution

- A total of 16 modules can be integrated into the network and controlled by the main fieldbus communication module (Node)
- Modules include analog and digital I/O modules providing addressing capacity for up to 1200 Inputs / 1200 Outputs per node.
- Unique distribution system allows system efficiency by allowing the same modules to be used in either centralized or distributed applications
- Distribution options include Inputs only, Outputs only, I/O only, valves with Inputs, valves with Outputs and valves with I/O
- Configuration can include up to 16 of the following modules:
  - Digital I/O modules
  - Sub-Bus valve modules
  - Analog I/O modules





DeviceNet™

DeviceNet™ is an open bus fieldbus communication system developed by Allen-Bradley based on Controller Area Network (CAN) technology. The governing body for DeviceNet™ is the Open DeviceNet™ Vendors Association (ODVA). The ODVA controls the DeviceNet™ specification and oversees product conformance testing.

Numatics' G3 nodes for DeviceNet™ have an integrated graphic display and are capable of addressing combinations of up to 1200 Outputs and 1200 Inputs.

They have been tested and approved for conformance by the ODVA.

More information about DeviceNet™ and the ODVA can be obtained from the following WEB site: [www.odva.org](http://www.odva.org)



Description	Replacement Part Number
DeviceNet™ communications module (node)	240-180

Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	0.070 Amps
BUS Power	11-25 VDC	0.025 Amps
Valves & Discrete I/O	24 VDC +/- 10%	8 Amps Maximum
Power Connector	Single key 4 pin 7/8" MINI type (male)	
Communication Connector	Single key 5 pin 7/8" MINI type (male)	
LED's	Module Status and Network Status	

Operating Data	
Temperature Range (ambient)	-10° to 115° F (-23° to +50°C)
Humidity	95% relative humidity, non-condensing
Vibration / Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65, IP67 (with appropriate assembly and termination)

Configuration Data	
Graphic Display	Display used for setting Node Address, Baud Rate, Fault / Idle Actions, DeviceNet™ QuickConnect and all other system settings.
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system setting in the event of total or partial system failure.
Maximum Valve-Solenoid Outputs	32
Maximum Addressable I/O Points	Various combinations of 1200 outputs and 1200 inputs

Network Data	
Supported Baud Rates	125K Baud, 250K Baud, 500K Baud, with Auto-Baud detection
Supported Connection Type	Polled, Cyclic, Change of State (COS) and combination Message Capability
Bus Connector	Single key 5 pin 7/8" MINI type (male)
Diagnostics	Power, short, open load conditions and module health are monitored
Special Features	Supports Auto-Device Replacement (ADR) and fail-safe device settings

Weight	
DeviceNet™ Communication Module	252g / 8.9 oz.



## Ethernet (Ethernet/IP & Modbus TCP/IP)

Ethernet used throughout the world to network millions of PC's has now evolved into a viable industrial network. Ethernet is an open architecture high-level communication network that meets the demands of today's industrial applications requiring high-speed (10/100 Mbit/s), high-throughput and flexibility. Various application layers for this protocol including EtherNet/IP and Modbus TCP. Additionally, Ethernet technology can integrate an on-board Web server, which can make the node readily accessible to any standard Web browser for configuration, testing and even retrieval of technical documentation.

Numatics' G3 nodes for Ethernet have an integrated graphic display and are capable of addressing combinations of up to 1200 Outputs and 1200 Inputs.

The G3 Ethernet/IP nodes have been tested and approved for conformance by the ODVA.

More information about Ethernet/IP and the ODVA can be obtained from the following WEB site: [www.odva.org](http://www.odva.org)



Description	Replacement Part Number
Ethernet/IP communications module (node)	240-181
Modbus TCP/IP communications module (node)	240-292

## Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	.091 Amps
Valves & Discrete I/O	24 VDC +/- 10%	8 Amps maximum
Power Connector	Single key 4 pin 7/8" MINI type (male)	
Communication Connector	D-coded 4 pin M12 type (female)	
LED's	Module Status, Network Status and Activity/Link	

Operating Data	
Temperature Range (ambient)	-10° to 115° F (-23° to +50°C)
Humidity	95% relative humidity, non-condensing
Vibration / Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65, IP67 (with appropriate assembly and termination)

Configuration Data	
Graphic Display	Display used for setting IP Address, Subnet mask, Fault / Idle Actions, DHCP / BootP and all other system settings.
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system setting in the event of total or partial system failure
Maximum Valve-Solenoid Outputs	32
Maximum Addressable I/O Points	Various combinations of 1200 outputs and 1200 inputs

Network Data	
Supported Baud Rates	10 Mbit / 100 Mbit
Bus Connector	D-coded 5 pin M12 type (female)
Diagnostics	Power, short, open load conditions and module health are monitored
Special Features	Integrated web server, fail-safe device settings, HTTP, FTP, and UNICAST (for EtherNet/IP)

Weight	
Ethernet Communication Module	255g / 9 oz.

PROFIBUS-DP®

PROFIBUS-DP® is a vendor-independent, open fieldbus protocol designed for communication between automation control systems and distributed I/O at the device level.

Numatics' G3 nodes for PROFIBUS-DP® have an integrated graphic display and are capable of addressing combinations of up to 1200 Outputs and 1200 Inputs.

The G3 nodes for PROFIBUS-DP® have been designed and tested to conform to the PROFIBUS® standard EN50170. Certification has been done by the PROFIBUS® Interface Center (PIC) according to the guidelines determined by the PROFIBUS® Trade Organization (PTO). The certification process ensures interoperability for all PROFIBUS® devices.

More information regarding PROFIBUS® can be obtained from the following WEB site:

www.profibus.com



Description	Replacement Part Number
PROFIBUS-DP® communications module (node)	240-239

Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	.094 Amps
Valves & Discrete I/O	24 VDC +/- 10%	8 Amps Maximum
Power Connector	Single key 5 pin 7/8" MINI type (male)	
Communication Connector	Single reverse key (B-Coded) 5 pin M12 type (1 male and 1 female)	
LED's	Module Status and Network Status	

Operating Data	
Temperature Range (ambient)	-10° to 115° F (-23° to +50°C)
Humidity	95% relative humidity, non-condensing
Vibration / Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65, IP67 (with appropriate assembly and termination)

Configuration Data	
Graphic Display	Display used for setting Node Address, Baud Rate, Fault / Idle Actions, and all other system settings.
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system setting in the event of total or partial system failure
Maximum Valve-Solenoid Outputs	32
Maximum Addressable I/O Points	Various combinations of 1200 outputs and 1200 inputs

Network Data	
Supported Baud Rates	125K Baud, 250K Baud, 500K Baud, with Auto-Baud detection
Bus Connector	Single key 5 pin 7/8" MINI type (male)
Diagnostics	Power, short, open load conditions and module health are monitored
Special Features	Supports Auto-Device Replacement (ADR) and fail-safe device settings

Weight	
PROFIBUS-DP® Communication Module	227g / 8 oz.

## PROFINET®

PROFINET® is the innovative open standard for Industrial Ethernet, development by Siemens and the Profibus® User Organization (PNO). PROFINET® complies to IEC 61158 and IEC 61784 standards. PROFINET® products are certified by the PNO user organization, guaranteeing worldwide compatibility.

Numatics' G3 nodes for PROFINET IO (PROFINET RT) have an integrated graphic display and are capable of addressing combinations of up to 1200 Outputs and 1200 Inputs.

PROFINET® is based on Ethernet and uses TCP/IP and IT standards and complements them with specific protocols and mechanisms to achieve Real Time performance.

More information regarding PROFINET® can be obtained from the following WEB site:  
[www.profibus.com](http://www.profibus.com)



Description	Replacement Part Number
PROFINET® communications module (node)	240-240

## Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	
Valves & Discrete I/O	24 VDC +/- 10%	8 Amps Maximum
Power Connector	Single key 5 pin 7/8" MINI type (male)	
Communication Connector	Two D-coded 4 pin M12 type (female)	
LED's	Module Status, Network Status and Activity/Link	

Operating Data	
Temperature Range (ambient)	-10° to 115° F (-23° to +50° C)
Humidity	95% relative humidity, non-condensing
Vibration / Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65, IP67 (with appropriate assembly and termination)

Configuration Data	
Graphic Display	Display used for setting IP Address, Subnet Mask, Fault / Idle Actions, and all other system settings.
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system setting in the event of total or partial system failure.
Maximum Valve-Solenoid Outputs	32
Maximum Addressable I/O Points	Various combinations of 1200 outputs and 1200 inputs

Network Data	
Supported Baud Rates	10 Mbit / 100 Mbit
Bus Connector	Two D-coded 4 pin M12 type (2-Female)
Diagnostics	Power, short, open load conditions and module health and configuration are monitored
Special Features	Integrated web server, Integrated 2 port switch, fail-safe device settings, and FSU

Weight	
PROFINET® Communication Module	227g / 8 oz.

CANopen®

CANopen® is an open protocol based on Controller Area Network (CAN). It was designed for motion oriented machine control networks but has migrated to various industrial applications. CAN in Automation (CIA) is the international users' and manufacturers' organization that develops and supports CAN-based protocols. Numatics' G3 nodes for CANopen® have an integrated graphic display and are capable of addressing combinations of up to 1200 Outputs and 1200 Inputs.

More information regarding this organization can be found at: [www.can-cia.org](http://www.can-cia.org)



Description	Replacement Part Number
CANopen® communications module (node)	240-291

Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	0.070 Amps
BUS Power	11-25 VDC	0.025 Amps
Valves & Discrete I/O	24 VDC +/- 10%	8 Amps maximum
Power Connector	Single key 4 pin 7/8" MINI type (male)	
Communication Connector	Single key 5 pin 7/8" MINI type (male)	
LED's	Module Status and Network Status	

Operating Data	
Temperature Range (ambient)	-10° to 115° F (-23° to +50° C)
Humidity	95% relative humidity, non-condensing
Vibration / Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65, IP67 (with appropriate assembly and termination)

Configuration Data	
Graphic Display	Display used for setting Node Address, Baud Rate, Fault / Idle Actions, and all other system settings.
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system setting in the event of total or partial system failure.
Maximum Valve-Solenoid Outputs	32
Maximum Addressable I/O Points	Various combinations of 1200 outputs and 1200 inputs

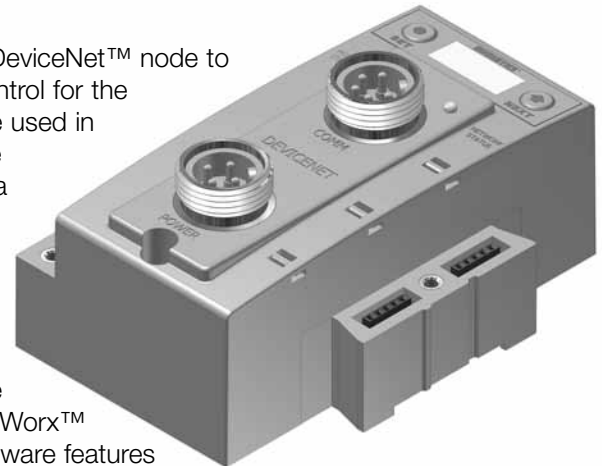
Network Data	
Supported Baud Rates	125K Baud, 250K Baud, 500K Baud, 1M Baud
Bus Connector	Single key 5 pin 7/8" MINI type (male)
Diagnostics	Power, short, open load conditions and module health are monitored and fail-safe device settings

Weight	
CANopen® Communication Module	252g / 8.9 oz.

## DeviceLogix™

DeviceLogix™ is a Rockwell Automation technology that allows a DeviceNet™ node to be programmed to execute a sequence independently from the control for the main PLC/IPC. A DeviceLogix™ enabled DeviceNet™ node can be used in conjunction with a standard DeviceNet™ network, providing simple distributed control functionality. Additionally it can also be used in a standalone application, without a network connection or PLC/IPC, to sequence pneumatic valves and control I/O. Numatics has integrated this licensed technology into its DeviceNet™ compatible valve manifold series, which combine the functionality of a modular pneumatic valve system with integrated I/O.

Programming of the DeviceLogix™ enabled node is done using the industry standard DeviceNet™ commissioning software tool RSNetWorx™ for DeviceNet™ from Rockwell Automation. The programming software features an easily understandable graphics environment where the users can simply “drag and drop” logic function blocks (i.e. AND, NAND, OR, NOR, XOR, XNOR, RS LATCHES, COUNTERS and TIMERS) onto a page and interconnect them to develop the required sequence, or ladder logic programming can be used to develop a sequence. The programmed sequence is downloaded to the node via standard DeviceNet™ communication connection, thus multiple nodes can be programmed on the same network.



Description	Replacement Part Number
DeviceLogix™ communications module (node)	240-293

## Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	0.070 Amps
BUS Power	11-25 VDC	0.025 Amps
Valves & Discrete I/O	24 VDC +/- 10%	8 Amps Maximum
Power Connector	Single key 4 pin 7/8" MINI type (male)	
Communication Connector	Single key 5 pin 7/8" MINI type (male)	
LED's	Module Status and Network Status	

Operating Data	
Temperature Range (ambient)	-10° to 115° F (-23° to +50° C)
Humidity	95% relative humidity, non-condensing
Vibration / Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65, IP67 (with appropriate assembly and termination)

Configuration Data	
Communication Module	Display used for setting Node Address, Baud Rate, Fault / Idle Actions, and all other system settings.
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system setting in the event of total or partial system failure including embedded DeviceLogix™ logic instructions.
Maximum Valve-Solenoid Outputs	32

Network Data	
Supported Baud Rates	125K Baud, 250K Baud, 500K Baud, with Auto-Baud detection
Supported Connection Type	Polled, Cyclic, Change of State (COS) and combination Message Capability
Bus Connector	Single key 5 pin 7/8" MINI type (male)
Diagnostics	Power, short, open load conditions and module health are monitored and fail-safe device settings
Special Features	Supports function block diagram and ladder logic programming

Weight	
DeviceLogix™ Communication Module	252g / 8.9 oz.

Ethernet POWERLINK®

Ethernet POWERLINK® is an open fieldbus protocol designed by B&R for communication between automation control systems and distributed I/O at the device level.

Numatics' G3 Ethernet POWERLINK® nodes have an integrated graphic display and are capable of addressing combinations of up to 512 Inputs / Outputs.

The G3 Ethernet POWERLINK® nodes have been designed and tested to conform to the Ethernet POWERLINK® specifications available at EPSG group (Ethernet Powerlink® Standardization Group).

The certification process ensures interoperability for all Ethernet POWERLINK® devices and compatible with B&R systems.

More information regarding Ethernet POWERLINK® can be obtained from the following WEB site.
www.ethernet-powerlink.org

ETHERNET
POWERLINK®

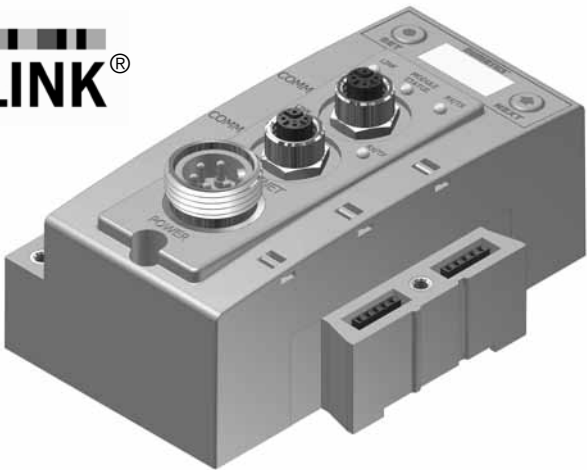


Table with 2 columns: Description, Replacement Part Number. Row 1: POWERLINK® communications module (node), 240-309

Technical Data

Table with 3 columns: Electrical Data, Voltage, Current. Rows include Node Power at Max. Brightness, Valves & Discrete I/O, Power Connector, Communication Connector, LED's, Operating Data (Temperature Range, Humidity, Vibration / Shock, Moisture Protection).

Table with 2 columns: Configuration Data. Rows include Graphic Display, ARM, Maximum Valve-Solenoid Outputs, Maximum Addressable I/O Points.

Table with 2 columns: Network Data. Rows include Supported Baud Rates, Bus Connector, Diagnostics, Special Features.

Table with 2 columns: Weight. Row 1: POWERLINK® Communication Module, 227g / 8 oz.



## EtherCAT®

EtherCAT® is an open ethernet based fieldbus protocol developed by Beckhoff. EtherCAT® sets new standards for real-time performance and topology flexibility with short data update/cycle times and low communication jitter.

Numatics' G3 EtherCAT® node has an integrated graphic display for simplified commissioning and diagnostics. It is capable of addressing combinations of up to 1200 outputs and 1200 inputs.

The G3 nodes for EtherCAT® have been designed and tested to conform with EtherCAT® specifications set forth by the ETG.

More information regarding EtherCAT® can be obtained from the following web site:  
[www.ethercat.org](http://www.ethercat.org)



Description	Replacement Part Number
EtherCAT® communications module	240-310

## Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness Valves and Discrete I/O	24 VDC +/- 10% 24 VDC +/- 10%	8 Amps Maximum
Power Connector	Single key 5 pin 7/8" MINI type (male)	
Communication Connector	Two D-coded 4 pin M12 type (female)	
LED's	Module Status, Network Status and Activity /Link	

Operating Data	
Temperature Range	-10° to 115° F (-23° to +50° C)
Humidity	95% relative humidity, non-condensing
Vibration / Shock	IEC 60068-2-27, IEC 60068-2-6
Moisture	IP65, IP67 (with appropriate assembly and termination)

Configuration Data	
Graphic Display	Display used for setting IP address, Subnet Mask, Fault / Idle Actions, and all other system settings.
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system settings in the event of total or partial system failure.
Maximum Valve Solenoid Outputs	32
Maximum Sub-Bus I/O Points	Various combinations of 1200 outputs and 1200 inputs

Network Data	
Supported Baud Rates	10 Mbit / 100 Mbit
Bus Connector	Two D-coded 4 pin M12 type (female)
Diagnostics	Power, short, open load conditions and module health and configuration are monitored
Special Features	Integrated web server, fail-safe device settings.

Weight	
EtherCAT® communications module	227g / 8 oz

EtherNet/IP DLR

EtherNet/IP used throughout the world to network millions of PC's has now evolved into a viable industry network. EtherNet/IP is an open architecture high-level communication network that meets the demands of today's industrial applications requiring high-speed (10/100 Mbit/s), high-throughput and flexibility. Additionally, EtherNet/IP technology can integrate an on-board Web server, which can make the node readily accessible to any standard Web browser for configuration, testing and even retrieval of technical documentation.

Numatics' G3 EtherNet/IP DLR (Device Level Ring) node with integrated display, has an embedded switch which allows the unit to be used in simplified networks with linear topology configurations (daisy chain). This technology alleviates the need for an external Ethernet switch device in a single subnet configuration. Additionally, the DLR compatibility allows the node to be used in a fault tolerant "ring" network, when using appropriate EtherNet/IP DLR scanners. DLR configuration allows communication recovery from a single point failure on the network ring (e.g. failed network connection or cable).

Numatics G3 EtherNet/IP nodes are capable of addressing combinations of up to 1200 Outputs and 1200 Inputs.

The G3 EtherNet/IP nodes have been tested and approved for conformance by the ODVA

More information about EtherNet and the ODVA can be obtained from the following WEB site:  
Open Device Vendors Association (ODVA) [www.odva.org](http://www.odva.org)



Description	Replacement Part Number
EtherNet/IP DLR communications module (node)	240-325

Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness Valves and Discrete I/O	24 VDC +/- 10% 24 VDC +/- 10%	8 Amps Maximum
Power Connector	Single key 4 pin 7/8" MINI type (male)	
Communication Connector	Two D-coded 4 pin M12 type (female)	
LED's	Module Status, Network Status and Activity / Link	

Operating Data	
Temperature Range	-10° to 115° F (-23° to +50° C)
Humidity	95% relative humidity, non-condensing
Vibration / Shock	IEC 60068-2-27, IEC 60068-2-6
Moisture	IP65, IP67 (with appropriate assembly and termination)

Configuration Data	
Graphic Display	Display used for setting IP address, Subnet Mask, Fault / Idle Actions, and all other system settings.
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system settings in the event of total or partial system failure.
Maximum Valve Solenoid Outputs	32
Maximum Sub-Bus I/O Points	Various combinations of 1200 outputs and 1200 inputs

Network Data	
Supported Baud Rates	10 Mbit / 100 Mbit
Bus Connector	Two D-coded 4 pin M12 type (female)
Diagnostics	Power, short, open load conditions and module health and configuration are monitored
Special Features	Embedded two port switch, Device Level Ring (DLR) compatibility, Linear network topology, Quick Connect capability, fail-safe device settings, integrated web server, HTTP, TFTP, UNICAST

Weight	
EtherCAT® communications module	227g / 8 oz

## I/O Modules

Digital Inputs -Terminal Strip Modules

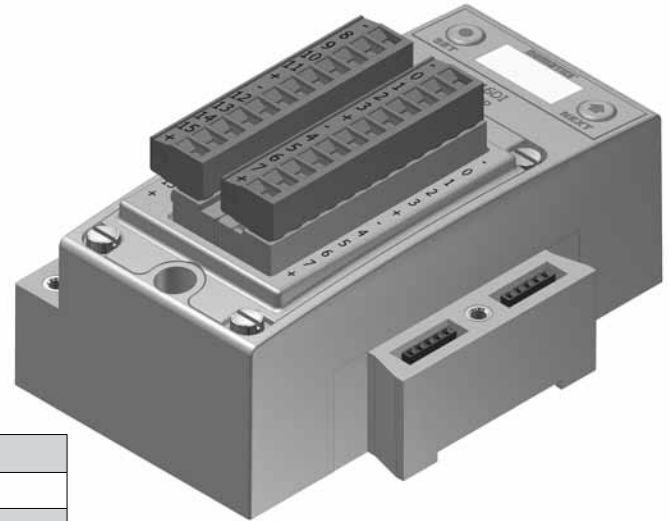
Description	Part Number
16 PNP Inputs	240-203
16 NPN Inputs	240-204

## Technical Data

Operating Data	
Temperature Range (ambient)	-10° to 115° F (-23° to +50° C)
Humidity	95% relative humidity, non-condensing
Vibration / Shock	IEC 60068-2-27, IEC60068-2-6
Wire Range	12 to 24 AWG
Strip Length	7 mm
Tightening Torque	0.5 Nm
Moisture Protection	IP20

Spare Parts	
Replacement Terminal Strip (I/O 0-7)	140-1073
Replacement Terminal Strip (I/O 8-15)	140-1074
Keying Element for terminal strip	140-1076
Keying Element for Module	140-1077

Weight	
Input Module	292g / 10.3 oz.



## Output Module -Valve Side-Single 25 Pin Sub D

Description	Part Number
16 PNP Inputs	239-1713

## Technical Data

Operating Data	
Temperature Range (ambient)	-10° to 115° F (-23° to +50° C)
Humidity	95% relative humidity, non-condensing
Vibration / Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP20

Spare Parts	
Cover Gasket	140-1073
Interface Gasket	140-1074

Weight	
Valve side output module	590g / 21 oz.



I/O Modules

Digital I/O 5-pin M12 Modules

Description	Part Number
Inputs	
8 PNP Inputs	240-206
8 NPN Inputs	240-210
16 PNP Inputs	240-205
16 NPN Inputs	240-209
Outputs	
8 PNP Outputs	240-208
8 PNP High Current Outputs (Fig. A Only)	240-300
16 PNP Outputs	240-207
Inputs and Outputs	
8 PNP Inputs and 8 PNP Outputs	240-211



Figure A

Analog I/O with settable high and low alarms  
5-pin M12 Modules

Description	Signal Type	Part Number
Inputs		
4 Analog Inputs	0-10 VDC	240-212
4 Analog Inputs	4-20 mA	240-214
Inputs and Outputs		
2 Analog Inputs & 2 Analog Outputs	0-10 VDC	240-213
2 Analog Inputs & 2 Analog Outputs	4-20 mA	240-215
2 Analog Inputs & 2 Analog Outputs High Current for Sentronic Devices	0-10 VDC	240-307



Technical Data

Operating Data	
Temperature Range (ambient)	-10° to 115° F (-23° to +50° C)
Humidity	95% relative humidity, non-condensing
Vibration / Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65, IP67 (with appropriate assembly and termination)
Connector	Female 5-pin M12 SPEEDCON
Resolution	16 bit

Weight	
I/O Module-Analog	244g / 8.6 oz
I/O Module-Digital	274g / 9.7 oz

Dust Cover - M12 Male  
230-647



## G3 RTD Temperature Module

The RTD module is for use with RTD (Resistive Temperature Detectors), supporting up to four RTD devices simultaneously. The module supports various RTD types including: Pt100, Pt200, Pt500, Pt1000, Ni100 and Ni1000.

### Technical Data

Electrical Data	
Voltage	24 VDC Module Supply (Via G3 System Aux. Power Connection)
Input Type	RTD (Resistive Temperature Detector), 4 per Module
Supported Sensor Type	Pt100, Pt200, Pt500, Pt1000, Ni100, Ni1000
Supported Temperature Coefficients	.00385; .00392; ....Ω/Ω/°C
Resolution	15 bits plus sign.
Data Format	Signed Integer
Calibration	Factory Calibrated Field Calibration w/ high tolerance (± .005%) 100 ohm and 350 ohm resistors.
Input Update (filter) Rate	Adjustable (5-20mS), factory default: 5ms
Accuracy	0.1% of full scale @ 25° C

Mechanical Data	
I/O Connector	M12 4 Pin Female (Accepts 5 Pin)
Mass	247g / 8.7 oz

Operating Data	
Temperature Range	-10° to 115° F (-23° to 46° C)
Humidity	95% relative humidity: non-condensing
Ingress Protection	IP65 (with appropriate assembly and terminations)




## 240- 317 G3 [Ex ia] NAMUR Input Module

The [Ex ia] module is for use with NAMUR certified intrinsically safe (IS) sensors.

### Technical Data

Electrical Data	
Voltage	24 VDC Module Supply Sensor Supply = 8.2 VDC Nominal
Input Type	NAMUR
NC (Normally Closed)	Signal Current (0) ≥ 2.1 mA Signal Current (1) ≤ 1.2 mA Short Circuit Monitoring < 100 Ω Open/Broken Wire Detection < 0.05 mA
Safety Parameter Output Maximums	Uo ≤ 9.6 V Io ≤ 13 mA Po ≤ 31 mW
Diagnostics	Open (broken wire) and Short Circuit

Certification	
Module Marking (ATEX)	 II(1)GD [Ex ia Ga] IIC [Ex ia Da] IIIC

Mechanical Data	
I/O Connector	M12 4 Pin Female (Compatible with 5 Pin)
Mass	284g / 10.0 oz

Operating Data	
Temperature Range	-10° to 115° F (-23° to 46° C)
Humidity	95% relative humidity: non-condensing
Ingress Protection	IP65 (with appropriate assembly and terminations)



Sub-Bus Modules

Sub-Bus Valve Module

Provides Sub-Bus In and Aux. Power In connections to a distributed valve manifold

Description	Part Number	Weight
Sub-Bus Valve Module	240-241	235g / 8.3 oz



Sub-Bus Out Module

Provides Sub-Bus Out and Aux. Power Out connections for I/O distribution

Description	Part Number	Weight
Sub-Bus Out Module with DIN Rail Clips	240-244	141g / 5.0 oz
Sub-Bus Out Module	240-183	130g / 4.6 oz



Dust Cover - M12 Male  
230-647



Sub-Bus In Module

Provides Sub-Bus In and Aux. Power In connections for I/O distribution

Description	Part Number	Weight
Sub-Bus In Module with DIN Rail Clips	240-246	141g / 5.0 oz
Sub-Bus In Module	240-185	130g / 4.6 oz



Dust Cover - M12 Female  
230-1200



## Miscellaneous Modules

### Auto Recovery Module (ARM)

Protects configuration information during a critical failure. Allows configuration information to be saved and reloaded to replacement module automatically.

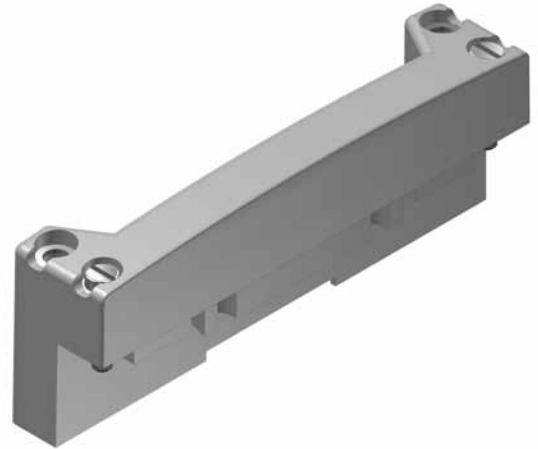
Description	Part Number	Weight
ARM Module	240-182	127g / 4.5 oz



### Terminator Module

Provides termination for the sub-bus. Must be installed after the last I/O module or after the communication module if there are no I/O modules installed.

Description	Part Number	Weight
Terminator Module w/ DIN Rail Clips	240-245	102g / 3.6 oz
Terminator Module	240-184	91g / 3.2 oz



### Jumper Clip

Provides electrical connections between modules

Description	Part Number	Weight
Jumper Clip	240-179	45g / 1.6 oz





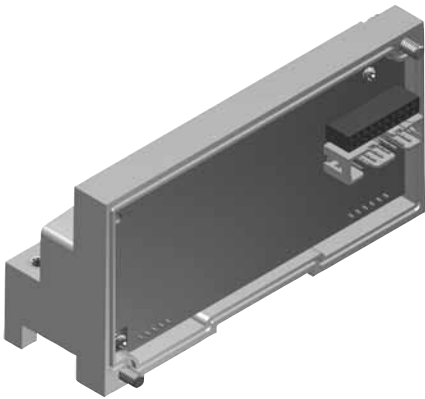
Miscellaneous Modules

Valve Driver Module

Provides connections between the communication module or Sub-Bus valve module and the valve manifold

Generation 2000, ISO 5599/2 and ISO 15407-2 Series

Description	Part Number	Weight
Valve Driver Module w/ DIN Rail Clips	219-858	147g / 5.2 oz
Valve Driver Module	219-828	136g / 4.8 oz



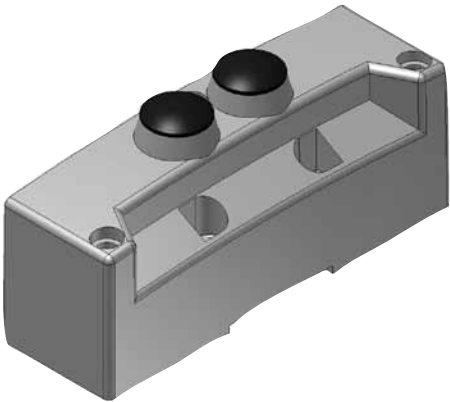
503 Series

Description	Part Number
Valve Driver Module	P599AE425188001
Valve Driver Module w/ DIN Rail Clips	P599AE425188002

Right Hand Mounting Cover

Used when a communication module is used without local valves installed

Description	Part Number	Weight
Right Hand Mounting Cover w/ DIN Rail Clips	240-290	82g / 2.9 oz.
Right Hand Mounting Cover	240-255	71g / 2.5 oz.



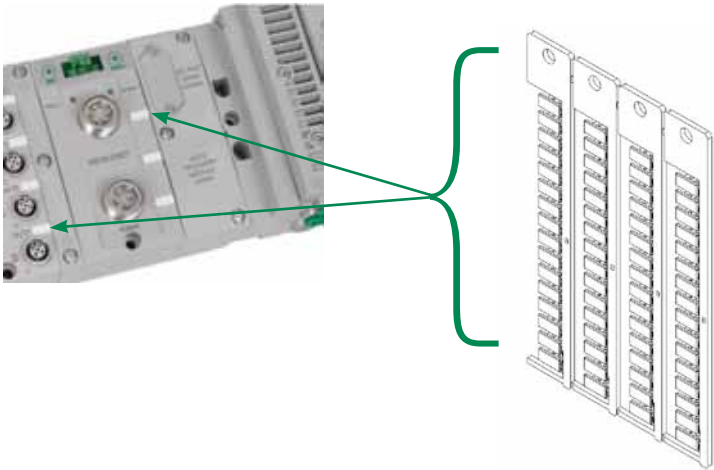
\* Not for use in combination with ARM Module

Accessories

For use with Murrplastik® Type 20 Software

Labels - 122-1251

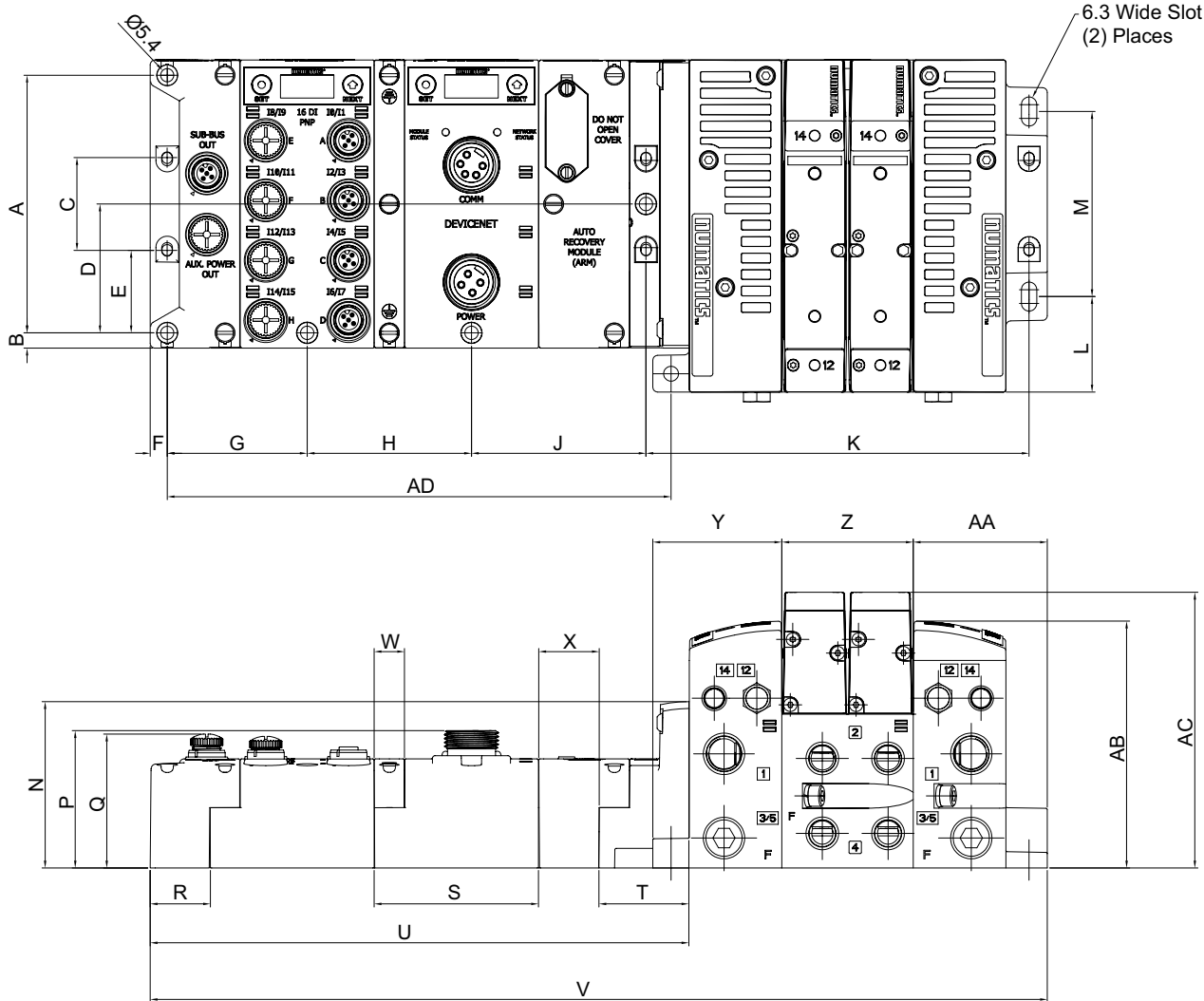
Technical Data	
Material	Polycarbonate (PC)
Color	White
Temperature Range	40° - 140° C
Label Dimensions	0.19" x 0.39"
Label - Printable Area	0.19" x 0.39"



**Dimensions: mm (Inches)**

**Dimensional Drawing - G3 Fieldbus Manifold Assembly**

**503 Series Valve Manifold Assembly with G3 Electronics and Sub-Bus Output**



A	B	C	D	E	F	G	H	J	K	L	M	N	P
105.5 (4.154)	6.3 (0.248)	38 (1.5)	52.8 (2.08)	33.8 (1.33)	7 (0.28)	57.5 (2.264)	67.5 (2.66)	71.7 (2.82)	-	39.1 (1.54)	75.8 (2.984)	68.1 (2.68)	56.3 (2.217)

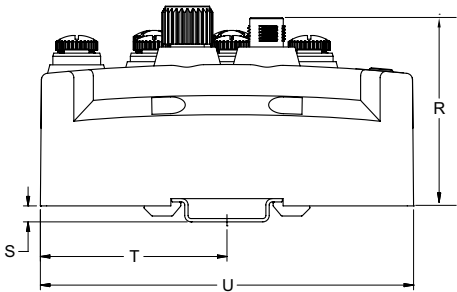
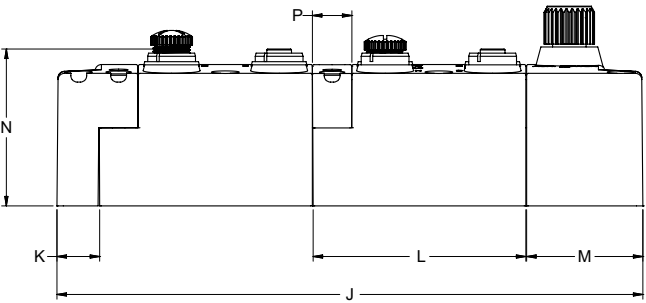
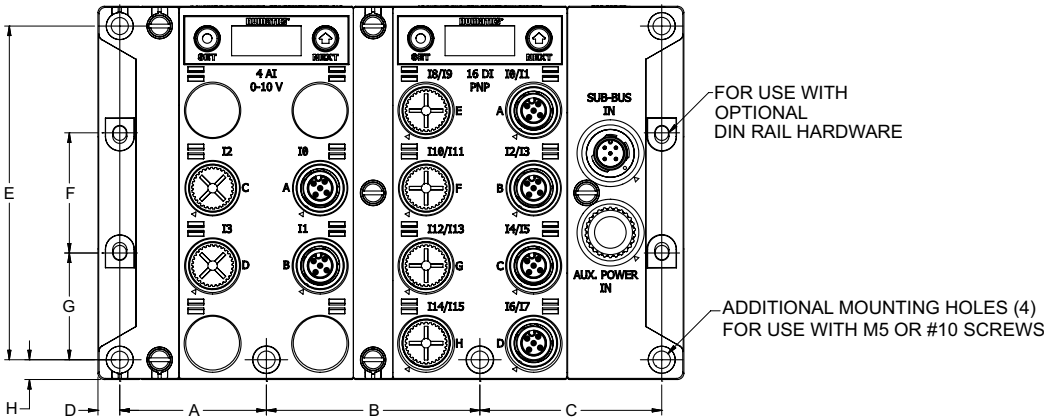
Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
54 (2.13)	24.8 (0.98)	67.5 (2.66)	36.9 (1.45)	221.3 (8.713)	368.6 (14.51)	12.5 (0.49)	24.8 (0.976)	53 (2.087)	-	55.1 (2.17)	101.1 (3.98)	112.9 (4.445)	207 (8.2)

\* - For valve manifold dimensions refer to Valve Series product catalogs

Dimensions: Inches (mm)

Dimensional Drawing - G3 Fieldbus I/O Assembly

I/O Assembly with G3 Electronics and Sub-Bus Input



VIEW SHOWN WITH OPTIONAL DIN  
RAIL HARDWARE AND 35mm DIN  
RAIL

A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
1.82 (46.35)	2.66 (67.50)	2.26 (57.50)	0.27 (6.90)	4.15 (105.50)	1.50 (38.00)	1.33 (33.75)	0.25 (6.25)	7.29 (185.25)	0.53 (13.50)	2.65 (67.25)	1.45 (36.75)	2.13 (54.00)	0.49 (12.50)	2.46 (62.50)	0.20 (5.05)	2.32 (59.00)	4.65 (118.00)

## Manifold Assembly How to Order

**Port Type**

8 = NPTF<sup>1</sup>  
G = ISO228/1-G<sup>1</sup>  
K = Push-in Fittings

**Product Series**

503 = 26 mm Valve

**Revision**

A = Initial Release

**Product Type**

V = Valve Manifold Assembly

**Electronics**

3 = G3 Fieldbus Electronics

**Number of Valve Stations**

B = 2	N = 14	Z = 26
D = 4	P = 16	3 = 28
F = 6	R = 18	5 = 30
H = 8	T = 20	7 = 32
J = 10	V = 22	
L = 12	X = 24	

**Options**

A00 = Standard (No Options)  
MUF = Muffler in End Plates  
DRM = DIN Rail Mount  
DWM = DIN Rail with MUF  
14X = External Pilot Supply from Port # 14  
D12 = (14X) External Pilot Supply from Port # 14 and (MUF) Muffler in End Plates  
D14 = (14X) External Pilot Supply from Port # 14 and (DRM) DIN Rail Mount  
F06 = (14X) External Pilot Supply from Port # 14, (MUF) Muffler in End Plates, and (DRM) DIN Rail Mount

**End Plate Style**

V = Vertical

**End Plate Port Size**

3 = 3/8  
4 = 1/2  
K = 10 mm  
M = 12 mm

**8 503 A V 3 B 2 0 0 V A00**

How To Order

G3 Assembly Kit

A K 3 E D 0 0 0 0 3 L STD

Electrical / Electronic  
Type & Location

3 = G3 Electronics

Valve Series\*

0 = N/A  
6 = 2002 - 02/R2  
E = 2005  
G = 2012  
B = 2035  
W = ISO 15407-2 18 mm  
X = ISO 15407-2 26 mm  
Q = ISO 5599/2 Size 1  
R = ISO 5599/2 Size 2  
S = ISO 5599/2 Size 3

Number of Valve Stations

A = 1 I = 9 Q = 17 Y = 25  
B = 2 J = 10 R = 18 Z = 26  
C = 3 K = 11 S = 19 2 = 27  
D = 4 L = 12 T = 20 3 = 28  
E = 5 M = 13 U = 21 4 = 29  
F = 6 N = 14 V = 22 5 = 30  
G = 7 O = 15 W = 23 6 = 31  
H = 8 P = 16 X = 24 7 = 32

Special Options

STD = Standard  
DRM = DIN Rail Mounting - Not available w/2035 and ISO 5599/2  
MUF = Muffler - Not available with ISO 5599/2  
DWM = DIN Rail w/ Muffler - Not available w/2035 and ISO 5599/2

End Plate Port Type

L = Push-In Fitting  
N = NPTF Pressure Ports  
(NPTF Conduit Ports if Applicable)  
G = ISO 228/1-G Tap Pressure Ports  
(ISO 228/1-G Conduit Ports if Applicable)

End Plate Port Size

2 = 1/4  
3 = 3/8  
4 = 1/2  
6 = 1  
H = 8 mm (5/16)  
K = 10 mm  
X = Two or more valve groups resulting in different standard end plate port sizes.

\*For manifold assembly with multiple valve series - Consult Factory

How To Order

G3 Electronics

G3 EP1 00 R 0 STD

Electronics Protocols

CO1 = CANopen  
DL1 = Device Logix  
DN1 = DeviceNet  
EC1 = EtherCAT  
ED1 = EtherNet/IP DLR  
EM1 = Ethernet Modbus - TCP  
EP1 = EtherNet/IP  
PL1 = Ethernet POWERLINK  
PT1 = PROFIBUS-DP  
PN1 = PROFINET  
DS2 = Sub-Bus Valve Manifold  
DS3 = Sub-Bus I/O Assembly

Number of I/O Modules

00 = 0  
01 = 1  
02 = 2  
03 = 3  
04 = 4  
05 = 5  
06 = 6  
07 = 7  
08 = 8  
09 = 9  
10 = 10  
11 = 11  
12 = 12  
13 = 13  
14 = 14  
15 = 15  
16 = 16

Special Options

STD = Standard  
DRM = DIN Rail Mounting  
E23 = Fieldbus assembly without valves  
E28 = Valve Side 25 pin Sub D NPN output module  
E40 = Auto Recovery Module  
  
G32 = DRM-DIN Rail Mounting  
E40-Auto Recovery Module  
  
G33 = DRM-DIN Rail Mounting  
E28-Valve Side 25 pin Sub D NPN output module  
  
G34 = E28-Valve Side 25 pin Sub D NPN output module  
E40-Auto Recovery Module  
  
G36 = E23-Fieldbus assembly without valves  
DRM-DIN Rail Mounting  
  
J32 = DRM-DIN Rail Mounting  
E28-Valve Side 25 pin Sub D NPN output module  
E40-Auto Recovery Module

Modification

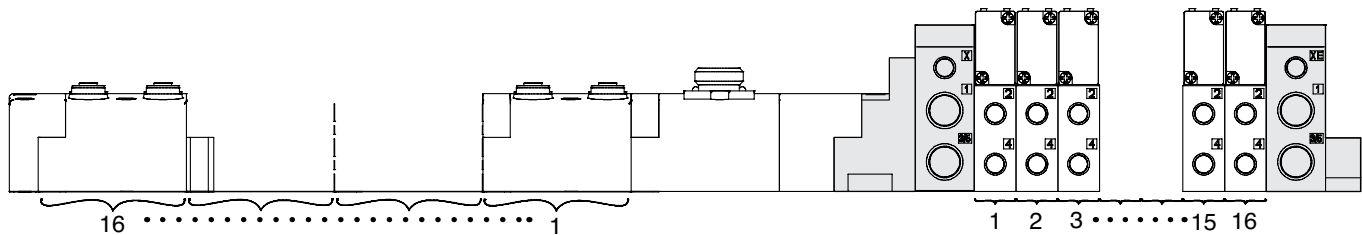
0 = Initial Release

Left Mounting

D = w/ Sub-Bus Out  
R = w/ Terminating Resistor

Ordering Valve Manifold Assemblies with G3 Electronics & Discrete I/O

For valve series 2002, 2005, 2012, 2035, ISO 15407-2 & ISO 5599/2 (2005 shown)



Shaded components are described by the assembly kit (AK) model number (see page 44). The communication module and number of I/O modules are described by the Electronic Interface (G3) model number designation (see page 44).

Each valve station is listed in sequential order from left to right when facing the port side of the manifold as shown.

Each discrete I/O module is listed in sequential order from RIGHT to LEFT starting from the communication module as shown.

NOTE:

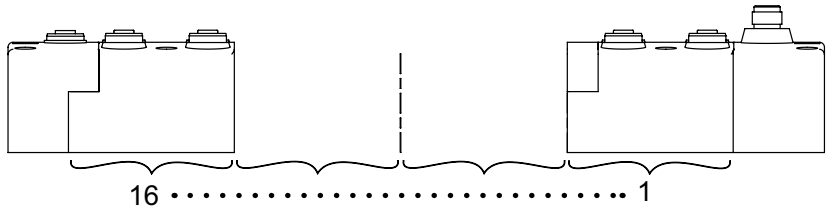
1. A total of 32 solenoid outputs are available. Either 32 single solenoid valves or 16 double solenoid valves or any combination of singles and doubles not to exceed 32 outputs can be specified.
2. For manifold assemblies that exceed 16 solenoids, the assembly MUST be configured so that an even number of solenoids are utilized prior to the station using the ribbon cable feature. The 16th and the 17th solenoids cannot be on the same valve.

Example Order - 2005 Shown

Assy Kit	AK3EP00003LMUF
Station 1	052BB4Z2ML00061
Station 2	052BB4Z2ML00061
Station 3	052BB4Z2ML00061
Station 4	052BB4Z2ML00061
Station 5	052BB4Z2ML00061
Station 6	052BB4Z2ML00061
Station 7	052BB4Z2ML00061
Station 8	052BB4Z2ML00061
Station 9	052BB4R2ML00061
Station 10	052BB4Z2ML00061
Station 11	052BB4Z2ML00061
Station 12	052BB4Z2ML00061
Station 13	052BB4Z2ML00061
Station 14	052BB4Z2ML00061
Station 15	052BB4Z2ML00061
Station 16	052BB4Z2ML00061
Electronics	G3DN116R0E40
Station 1	240-205
Station 2	240-205
⋮	
Station 15	240-205
Station 16	240-205

How To Order

G3 Electronics



1. Refer to the selection table on page 44 to specify the control electronics and I/O configuration.
2. Each discrete I/O module is listed in sequential order from RIGHT to LEFT as shown.
3. A maximum of 16 I/O modules are supported by a single communication node. Analog I/O & digital I/O (NPN & PNP)

Example Order - I/O assembly

with Sub-Bus in and Sub-Bus out modules

Electronics	G3DS316D0STD
Station 1	240-205
Station 2	240-205
⋮	
Station 15	240-205
Station 16	240-205

7/8" MINI Cables

4 Pin Cables for DeviceNet™, DeviceLogix, Ethernet, Modbus TCP, CANopen, and Sub-Bus

7/8" MINI Straight 4 Pin Female Single Ended Cable, Euro Color Code
MC0405MAC00000000 – 5 Meter
MC0410MAC00000000 – 10 Meter

7/8" MINI 90° 4 Pin Female Single Ended Cable, Euro Color Code
MD0405MAC00000000 – 5 Meter
MD0410MAC00000000 – 10 Meter

5 Pin Cables for PROFIBUS DP, PROFINET and POWERLINK

7/8" MINI Straight 5 Pin Female Single Ended Cable, Euro Color Code
MC0505MAG00000000 – 5 Meter
MC0510MAG00000000 – 10 Meter

7/8" MINI 90° 5 Pin Female Single Ended Cable, Euro Color Code
MD0505MAG00000000 – 5 Meter
MD0510MAG00000000 – 10 Meter

7/8" MINI Field Wireable Connectors

4 Pin Connectors for DeviceNet™, DeviceLogix, Ethernet, Modbus TCP, CANopen, and Sub-Bus

7/8" MINI Straight 4 Pin Female Field Wireable Connector
MC04F90000000000 – Cable Gland – One size fits all

7/8" MINI 90° 4 Pin Female Field Wireable Connector
MD04F20000000000 – PG 9 Cable Gland

5 Pin Connectors for PROFIBUS DP, PROFINET and POWERLINK

7/8" MINI Straight 5 Pin Female Field Wireable Connector
MC05F90000000000 – Cable Gland – One size fits all

7/8" MINI 90° 5 Pin Female Field Wireable Connector
MD05F20000000000 – PG 9 Cable Gland





## M12 to 7/8" MINI Cable

### 4 Pin Cable for Sub-Bus Power



#### M12 Straight 4 Pin Male to 7/8" MINI 4 Pin Female Extension

TA0401MA0MC0471T – 1 Meter
TA0405MA0MC0471T – 5 Meter
TA0410MA0MC0471T – 10 Meter

## M12 Cables

### 4 Pin Cables for Sub-Bus Power



#### M12 Straight 4 Pin Female Single Ended Cable, Euro Color Code

TC0405MAE0000000 – 5 Meter
TC0410MAE0000000 – 10 Meter



#### M12 90° 4 Pin Female Single Ended Cable, Euro Color Code

TD0405MAE0000000 – 5 Meter
TD0410MAE0000000 – 10 Meter



#### M12 Straight 4 Pin Male to Female Cable Extension

TC0401MAETA04000 – 1 Meter
TC0405MAETA04000 – 5 Meter
TC0410MAETA04000 – 10 Meter

## M12 Field Wireable Connectors

### 4 Pin Connectors for Sub-Bus Power



#### M12 Straight 4 Pin Female Field Wireable Connector

TC04F10000000000 – PG 7 Cable Gland
TC04F20000000000 – PG 9 Cable Gland

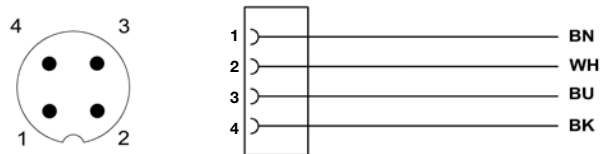


#### M12 90° 4 Pin Female Field Wireable Connector

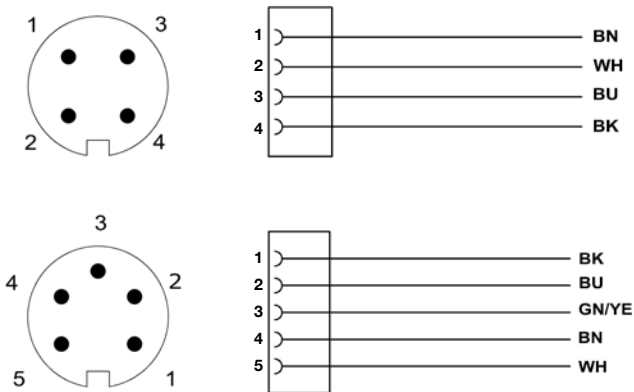
TD04F10000000000 – PG 7 Cable Gland
TD04F20000000000 – PG 9 Cable Gland

Pin Out and Technical Data

M12 Cable - Pin Out / Euro Color Code  
(Male View)



7/8" MINI Cable - Pin Out / Euro Color Code  
(Male View)



Technical Data	M12	7/8" MINI
Molded Body / Insert	Cable = PVC    Field Wireable = Polyamide	Cable = PVC    Field Wireable = Polyamide or PBT
Coupling Nut	Nickel Copper Alloy	Black Anodized Aluminum
Cable Jacket Material	PVC	PVC
Cable O.D.	7.4mm	7.4mm (4 Pin & 5 Pin)
Voltage Rating (Nominal)	250 V Max. @ 105° C	250 V Max. @ 105° C
Current Rating	Cables = 4.0 Amps    Field Wireable = 4.0 Amps	Cables = 5.5 Amps    Field Wireable = 8.0 Amps
Degree of Protection	IP67 (mated)	IP67 (mated)
Operating Temperature	-25° C - 85° C	-40° C - 85° C
Conductor Gauge	Cable = 18 AWG	Cable = 18 AWG
Bend Radius	Cable = 74mm	Cable = 74mm (4 Pin & 5 Pin)
Maximum Wire AWG	Field Wireable = 18 AWG	Field Wireable = 16 AWG
Wire Connection	Field Wireable = Screw Terminal	Field Wireable = Screw Terminal
PG 7 Range	4-6 mm	N/A
PG 9 Range	6-8 mm	5-13 mm – One size fits all
PG 13.5 Range	N/A	5-13 mm – One size fits all



## 7/8" MINI Drop Cables

### 7/8" MINI Straight 5 Pin Female Single Ended Cable - Shielded

MC0505MGD0000000 – 5 Meter

MC0510MGD0000000 – 10 Meter



## M12 Drop Cables

### M12 Straight 5 Pin Female Single Ended Cable - Shielded

TC0505MGD0000000 – 5 Meter

TC0510MGD0000000 – 10 Meter



## 7/8" MINI 3 Way "T"

### 3 Way 7/8" MINI "T"

MC0500000MT05000



## Terminating Resistors "TR"

### 7/8" MINI & M12 Straight 5 Pin Male Terminators

TA05TR0000000000 – M12 Male

MA05TR0000000000 – MINI Male



## 7/8" MINI Field Wireable Connectors

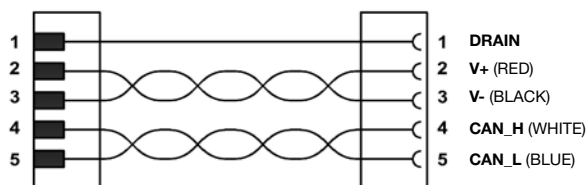
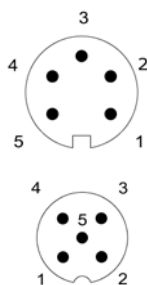
### 7/8" MINI Straight 5 Pin Field Wireable Connectors

MC05F90000000000 – Female - Cable Gland - One size fits all

MA05F90000000000 – Male - Cable Gland - One size fits all

## MINI Cable - Pin Out / Color Code (Male View)

## M12 Cable - Pin Out / Color Code (Male View)



Technical Data	Cable	T & TR	Field Wireable
Molded Body / Insert	PVC	PVC	Body = Glass Filled Polyamide
Coupling Nut	Nickel Plated Brass or Anodized Aluminum	Clear Anodized Aluminum	Black Anodized Aluminum
Cable Jacket Material	PVC	N/A	N/A
Cable O.D.	MINI = 8mm M12 = 8mm	N/A	5-13mm – One size fits all
Voltage Rating (Nominal)	150 Volts	T =300 Volts	600 Volts
Current Rating	MINI =4.0 Amps MR = 3.0 Amps	T = 8.0 Amps TR = NA	8.0 Amps
Degree of Protection	IP65 (mated)	IP65 (mated)	IP65 (mated)
Operating Temperature	-40° C - 80° C	-40° C - 105° C	-40° C - 90° C
Conductor Gauge	22 AWG Power 24 AWG Signal	N/A	16-22 AWG
Bend Radius	Cable = 72mm	N/A	N/A
Wire Connection	NA	N/A	Screw Terminal



M12 D-Coded Cables

M12 Straight 4 Pin Male D-Coded Single Ended Cable
QA0405MR00000000 – 5 Meter
QA0410MR00000000 – 10 Meter

M12 Straight 4 Pin Male D-Coded Double Ended Cable
QA0405MR0QA04000 – 5 Meter
QA0410MR0QA04000 – 10 Meter

M12 Straight 4 Pin Male D-Coded to Male RJ45 Cable
QA0405MR0VA04000 – 5 Meter
QA0410MR0VA04000 – 10 Meter

M12 Straight 4 Pin Male D-Coded to RJ45 Female Socket Convertor
QA04D2MK0VC04000 – 0.2 Meter

M12 D-Coded Field Attachable CONNECTORS

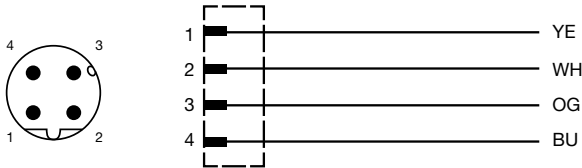
M12 Straight 4 Pin Male D-Coded Field Wireable Connector
QA04F20000000000 – PG 9 Cable Gland – Screw Terminal

M12 Straight 4 Pin Male D-Coded Field Wireable Connector W/IDC
QA04F200R000071N – PG 9 Cable Gland - IDC

RJ45 Field Attachable CONNECTOR

RJ45 Field Wireable Connector with IDC
VA08F200R000071N – PG 9 Cable Gland

M12 D-Coded Cable - Pin Out / Color Code (Male View)



Technical Data	Cable	RJ45 Field Attachable	M12 Field Attachable
Molded Body / Insert	TPU	Housing = PA Carrier = PC	Body = Nickel Plated Zinc Insert = PA 66
Coupling Nut	Nickel Plated Zinc	N/A	Nickel Plated Brass
Cable Jacket Material	PVC	N/A	N/A
Cable O.D.	6.5 to 7.4 mm	Accepts 4.5 to 8.0 mm	Accepts 6.0 to 8 mm
Voltage Rating (Nominal)	250 Volts	N/A	60 Volts
Current Rating	4.0 Amps	1.75 Amps	Screw 4.0 Amps IDC 1.75 Amps
Degree of Protection	IP65 (mated), RJ45 – IP20	IP20	IP 65 (mated)
Operating Temperature	-25° C - 60° C	-10° C - 60° C	-40° C - 85° C
Conductor Gauge	22 & 24 AWG	22 AWG Solid/Stranded	Screw 24-18 AWG IDC 26-22 AWG
Bend Radius Minimum	19.5mm (fixed) 45.5mm (Flexible)	N/A	N/A
Wire Connection	NA	IDC	Screw Terminal, IDC



## M12 D-Coded Cables

### M12 Straight 4 Pin Male D-Coded Double Ended Cable

QA0405MS0QA04000 – 5 Meter

QA0410MS0QA04000 – 10 Meter

### M12 Straight 4 Pin Male D-Coded to Male RJ45 Cable

QA0405MS0VA04000 – 5 Meter

QA0410MS0VA04000 – 10 Meter

### M12 Straight 4 Pin Male D-Coded to RJ45 Female Socket Converter

QA04D2MK0VC04000 – 0.2 Meter



## M12 D-Coded Field Attachable CONNECTORS

### M12 Straight 4 Pin Male D-Coded Field Wireable Connector

QA04F20000000000 – PG 9 Cable Gland – Screw Terminal

### M12 Straight 4 Pin Male D-Coded Field Wireable Connector W/IDC

QA04F200R000071N – PG 9 Cable Gland - IDC

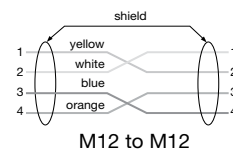
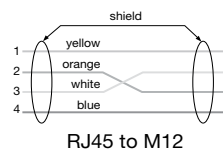
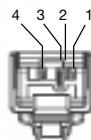
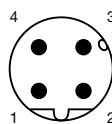
## RJ45 Field Attachable CONNECTOR

### RJ45 Field Wireable Connector with IDC

VA08F200R000071N – PG 9 Cable Gland

### M12 D-Coded Cable & RJ45

#### Pin Out / Color Code (Male View)



Technical Data	Cable	RJ45 Field Attachable	M12 Field Attachable
Molded Body / Insert	N/A	Housing = PA Carrier = PC	Body = Nickel Plated Zinc Insert = PA 66
Coupling Nut	Nickel Plated Zinc or Brass	N/A	Nickel Plated Brass
Cable Jacket Material	PUR	N/A	N/A
Cable O.D.	6.5 mm	Accepts 4.5 to 8.0 mm	Accepts 6.0 to 8 mm
Voltage Rating (Nominal)	N/A	N/A	60 Volts
Current Rating	N/A	1.75 Amps	Screw 4.0 Amps IDC 1.75 Amps
Degree of Protection	IP65 (mated), RJ45 – IP20	IP20	IP 65 (mated)
Operating Temperature	-25° C - 60° C	-10° C - 60° C	-40° C - 85° C
Conductor Gauge	22 AWG	22 AWG Solid/Stranded	Screw 24-18 AWG IDC 26-22 AWG
Bend Radius Minimum	45.5mm	N/A	N/A
Wire Connection	N/A	IDC	Screw Terminal, IDC

M12 D-Coded Cables

M12 Straight 4 Pin Male D-Coded Single Ended Cable - Shielded

QA0405MK00000000 – 5 Meter

QA0410MK00000000 – 10 Meter

M12 Straight 4 Pin Male D-Coded to Male RJ45 Cable - Shielded

QA0405MK0VA04000 – 5 Meter

QA0410MK0VA04000 – 10 Meter

M12 Straight 4 Pin Male D-Coded to  
RJ45 Female Socket Convertor - Shielded

QA04D2MK0VC04000 – 0.2 Meter

M12 D-Coded Field Wireable Connectors

M12 Straight 4 Pin Male D-Coded Field Wireable Connector

QA04F20000000000 – PG 9 Cable Gland – Screw Terminal

M12 Straight 4 Pin Male D-Coded Field Wireable Connector w/IDC

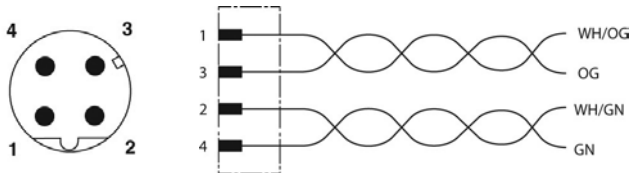
QA04F2000000071N – PG 9 Cable Gland - IDC

RJ45 Field Wireable Connector

RJ45 Field Wireable Connector with IDC

VA08F2000000071N – PG 9 Cable Gland

M12 D-Coded Cable - Pin Out / Color Code  
(Male View)



Technical Data	Cable	RJ45 Field Wireable	Field Wireable
Molded Body / Insert	TPU, PA, PA66	Housing = PA Carrier = PC	Body = Nickel Plated Zinc Insert = PA 66
Coupling Nut	Nickel Plated Zinc or Brass	N/A	Nickel Plated Brass
Cable Jacket Material	PUR or PVC	N/A	N/A
Cable O.D.	6.7 or 8.0 mm	4.5 to 8.0 mm	6.0 to 8.0 mm
Voltage Rating (Nominal)	42 Volts	N/A	60 Volts
Current Rating	1.5 Amps	1.75 Amps	Screw 4.0 Amps IDC 1.75 Amps
Degree of Protection	IP65 (mated)	IP20 (mated)	IP65 (mated)
Operating Temperature	-20° C - 60° C	-20° C - 70° C	-40° C - 85° C
Conductor Gauge	26 or 24 AWG	26-22 AWG Solid/Stranded	Screw 24-18 AWG IDC 26-22 AWG
Bend Radius	40mm	N/A	N/A
Wire Connection	NA	IDC	IDC, Screw Terminal



## M12 Reverse Key B-Coded Cables

### M12 Straight 5 Pin Male Reverse Key Single Ended Cable - Shielded

RA0505MHP0000000 – 5 Meter
RA0510MHP0000000 – 10 Meter

### M12 Straight 5 Pin Female Reverse Key Single Ended Cable - Shielded

RC0505MHP0000000 – 5 Meter
RC0510MHP0000000 – 10 Meter

### M12 Straight 5 Pin MALE TO FEMALE Reverse Key EXTENSION CABLE

RC0505MHPRC05000 – 5 Meter
RC0510MHPRC05000 – 10 Meter

## M12 Reverse Key B-Coded Field Wireable Connectors

### M12 Straight 5 Pin Male Reverse Key Field Wireable Connector

RA05F200P0000000 – PG 9 Cable Gland
-------------------------------------

### M12 Straight 5 Pin Female Reverse Key Field Wireable Connector

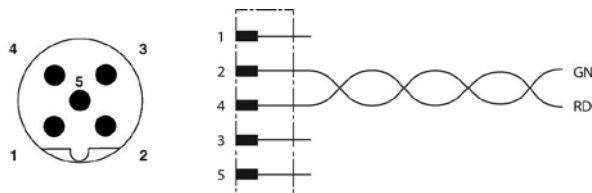
RC05F200P0000000 – PG 9 Cable Gland
-------------------------------------

## M12 Reverse Key B-Coded Terminating Resistor

### M12 Straight 5 Pin Male Reverse Key Terminating Resistor

RA05TR0000000000 – Male
-------------------------

## M12 Reverse Key B-Coded Cable Pin Out / Color Code (Male View)



Technical Data	Cable	TR	Field Wireable
Molded Body / Insert	TPU	TR = TPU	Body = Nickel Plated Zinc Insert = PA 66
Coupling Nut	Nickel Plated Zinc	Nickel Plated Zinc or Brass	Nickel Plated Brass
Cable Jacket Material	PUR	N/A	N/A
Cable O.D.	7.4 mm	N/A	8.5 mm Max.
Voltage Rating (Nominal)	250 volts	60 Volts	60 Volts
Current Rating	4.0 Amps	4.0 Amps	4.0 Amps
Degree of Protection	IP65 (mated)	IP65 (mated)	IP 65 (mated)
Operating Temperature	-20° C - 80° C	-20° C - 80° C	-40° C - 85° C
Conductor Gauge	24 AWG	N/A	18 AWG Maximum
Bend Radius	Cable = 78mm	N/A	N/A
Wire Connection	N/A	N/A	Screw Terminal



## I/O Cables with SPEEDCON Connector Technology



### M12 Straight 4 Pin Male Single Ended Cable, Euro Color Code

TA04E5MIE000071P – 1.5 Meter

TA0403MIE000071P – 3 Meter

TA0405MIE000071P – 5 Meter



### M12 90° 4 Pin Male Single Ended Cable, Euro Color Code

TB04E5MIE000071P – 1.5 Meter

TB0403MIE000071P – 3 Meter

TB0405MIE000071P – 5 Meter



### M12 Straight 4 Pin Male to Female Cable Extension

TC04E5MIETA0471P – 1.5 Meter

TC0403MIETA0471P – 3 Meter



### M12 Straight 3 Pin Male to M8 3 Pin Straight Female Extension

TC03E5MIEPA0371P – 1.5 Meter

TC0303MIEPA0371P – 3 Meter

## I/O Connectors



### M12 Straight 4 Pin Male Field Wireable Connector, IDC Connection

TA04F2000000081E – PG 9 Cable Gland w/ SPEEDCON connector technology



### M12 Straight 4 Pin Male Field Wireable Connector, Screw Terminal

TA04F10000000000 – PG 7 Cable Gland

TA04F20000000000 – PG 9 Cable Gland



### M12 90° 4 Pin Male Field Wireable Connector, Screw Terminal

TB04F10000000000 – PG 7 Cable Gland

TB04F20000000000 – PG 9 Cable Gland

## I/O Splitters



### M12 to M12 "Y" Splitter, 21mm Spacing

TA0500000JC05000



### M12 to M8 "Y" Splitter

TA0400000KC03000



### M12 Cable Splitter, 2 Straight M12 Female Connectors

TA04D3MIEJC04000 – 0.3 Meter

TA04E5MIEJC04000 – 1.5 Meter

TA0403MIEJC04000 – 3.0 Meter



### M12 Cable Splitter, 2 Straight M8 Female Connectors

TA04D3MIEKC03000 – 0.3 Meter

TA04E5MIEKC03000 – 1.5 Meter

TA0403MIEKC03000 – 3.0 Meter



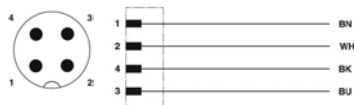
### Wire Stripper Tool

140-1097

## I/O Cable Connector Pin Out Diagrams

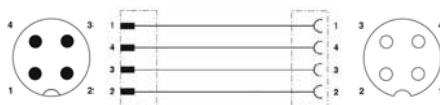
### M12 Cable - Pin Out / Color Code

TA04XXMIE0000000, TB04XXMIE0000000  
(Male View)



### M12 Cable - Pin Out / Color Code

TC03XXMIEPA0371P  
(Male to Female View)



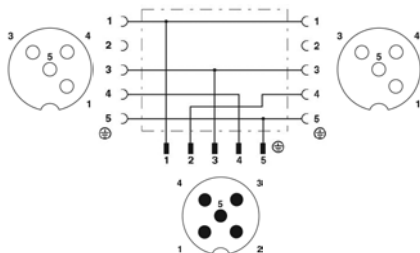
### M12 Cable - Pin Out / Color Code

TC03XXMIEPA0371P  
(Male to Female View)



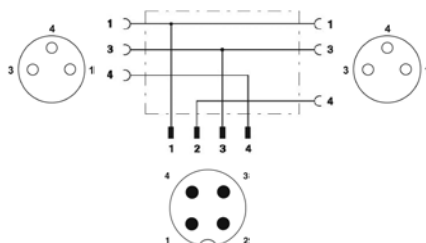
### M12 to M12 "Y" Splitter - Pin Out

TA0500000JC05000  
(Male to Female View)



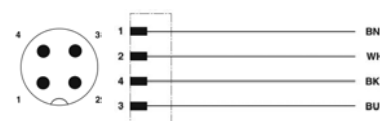
### M12 to M8 "Y" Splitter - Pin Out

TA0400000KC03000  
(Male to Female View)



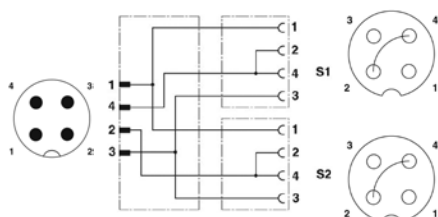
### M12 Field Wireable (IDC) - Pin Out

TA04F2000000081E (SPEEDCON)  
(Male View)



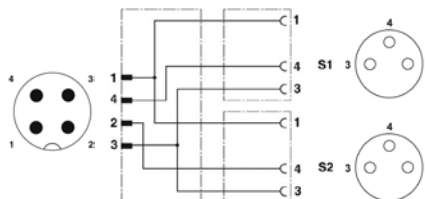
### M12 to M12 Cable Splitter - Pin Out

TA04XXMIEJC04000  
(Male to Female View)



### M12 to M8 Cable Splitter - Pin Out

TA04XXMIEKC03000  
(Male to Female View)



Note:  
XX denotes allowable length  
See pages 46 and 47.

## Cable and Connector Technical Data

Technical Data	M12 Cables	M12/M8 Cables	M12 Connectors
Molded Body / Insert	TPU	TPU	Polyamide (or) PA 66
Coupling Nut	Nickel Plated Zinc	Nickel Plated Zinc	Nickel Plated Zinc
Cable Jacket Material	PUR	PUR	NA
Cable O.D.	4.70 mm	4.70 mm	PG7 4.0 to 6.0 mm PG9 4.0 to 8.0 mm
Voltage Rating	250 Volts	60 Volts	50 Volts
Current Rating (Cond.)	4.0 Amps	3.0 Amps	4.0 Amps
Degree of Protection	IP65 (mated)	IP65 (mated)	IP67 (mated)
Operating Temperature	-25° C to 80° C (fixed instl.)	-25° C to 80° C (fixed instl.)	-25° C to 80° C
Conductor Gauge	22 AWG	22 AWG	22 AWG Min. 18 AWG Max.
Bend Radius	47 mm	47 mm	NA

Technical Data	I/O "Y" Splitter	I/O Cable Splitter
Molded Body / Insert	TPU	TPU
Coupling Nut	Nickel Plated Zinc	Nickel Plated Zinc
Cable Jacket Material	NA	PUR
Cable O.D.	NA	4.40 mm
Voltage Rating	60 Volts	60 Volts
Current Rating (Cond.)	3.0 Amps	3.0 Amps
Degree of Protection	IP67 (mated)	IP67 (mated)
Operating Temperature	-25° C to 90° C	-25° C to 80° C
Conductor Gauge	NA	22 AWG or 24 AWG
Bend Radius	NA	44 mm

Technical Data	Wire Stripper
Use with	PVC Insulation
Stripping Range	28 AWG to 10 AWG
Cutting Range (Flexible)	10 AWG
Cutting Range (Rigid)	12 AWG

## Sub-Bus Cables



M12 Straight 5 Pin Male to Female Sub-Bus Cable - Shielded
TA0501MGDTC0571P – 1 Meter
TA0505MGDTC0571P – 5 Meter
TA0510MGDTC0571P – 10 Meter



M12 Straight 5 Pin Female FIELD WIREABLE CONNECTOR, SPRING CAGE
TC05F2000000071V – PG9 Cable Gland



M12 Straight 5 Pin Male FIELD WIREABLE CONNECTOR, SPRING CAGE
TA05F2000000071V – PG9 Cable Gland



M12 90° 5 Pin Female FIELD WIREABLE CONNECTOR, SPRING CAGE
TD05F2000000071V – PG9 Cable Gland



M12 90° 5 Pin male FIELD WIREABLE CONNECTOR, SPRING CAGE
TB05F2000000071V – PG9 Cable Gland



Bulk Sub-Bus Cable	*NOTE
000550MGD0005000 – 50 Meter Length	
0005A0MGD0005000 – 100 Meter Length	

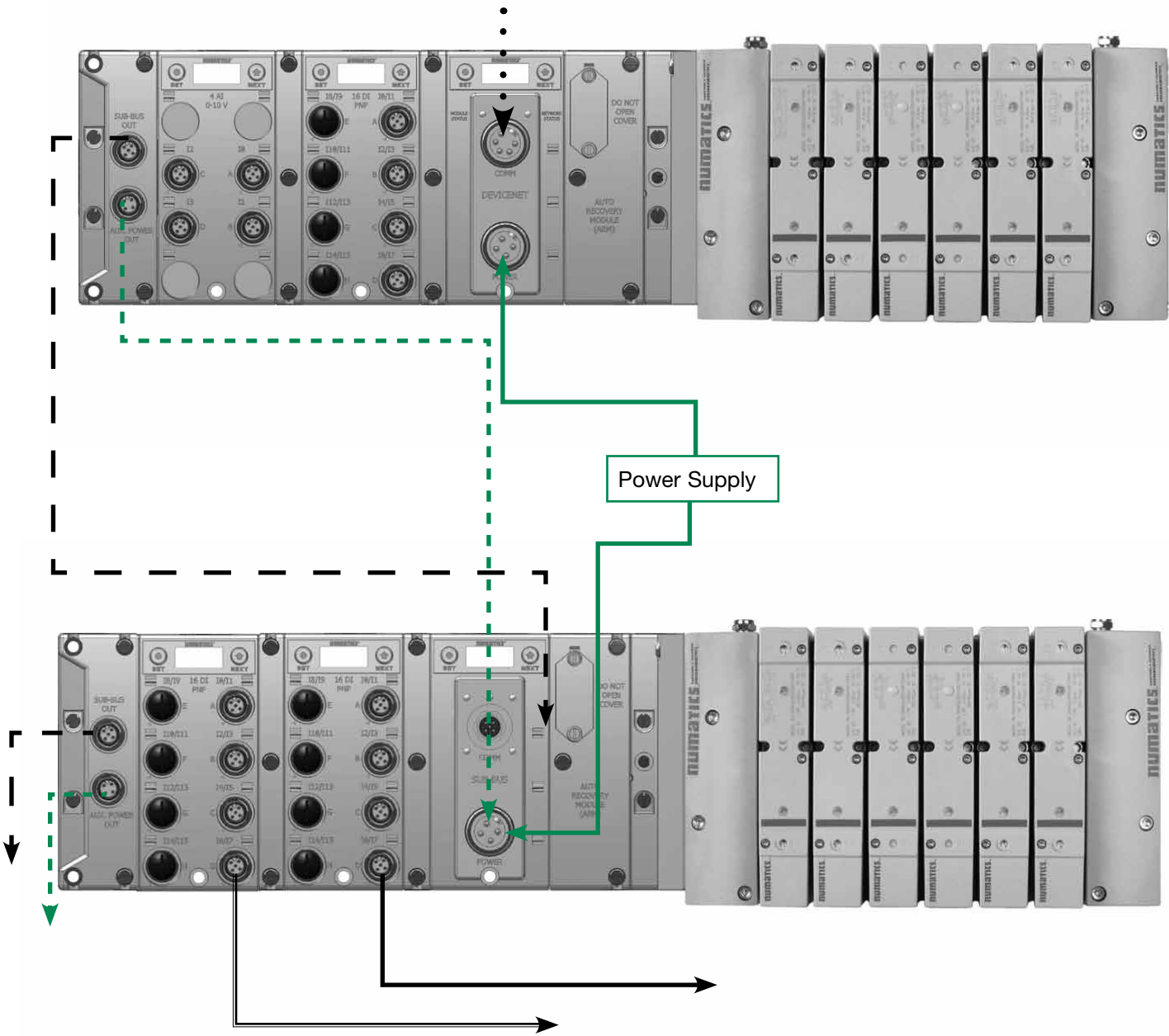
**\* Note:**

Length of field wired cables should not exceed the maximum length of 30 meters for total sub-bus communications link. See appropriate technical manual for sub-bus length requirements. The cable assemblies and Bulk cable are the only approved cables for the G3 Sub-Bus link. See technical document TDG3SBWD1-0EN for proper installation and wiring of field wireable connectors.

## Technical Data

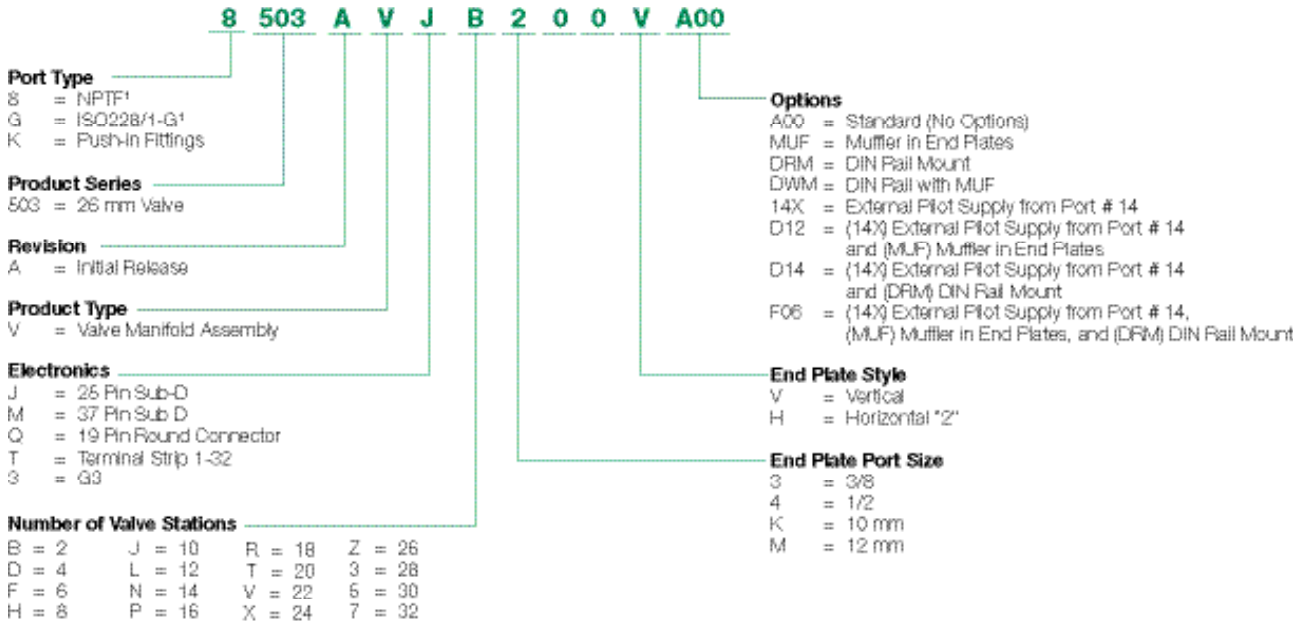
Technical Data	Cable	Connectors	Bulk Cable
Molded Body / Insert	TPU	Zinc - Nickel Plated	N/A
Coupling Nut	Zinc - Nickel Plated	Brass - Nickel Plated	N/A
Cable Jacket Material	PUR	N/A	Gray RAL 7001
Cable O.D.	6.70 mm	N/A	6.70 mm
Voltage Rating (Nominal)	60 Volts	60 Volts	60 Volts
Current Rating	4.0 Amps	4.0 Amps	4.0 Amps
Degree of Protection	IP65 (mated)	IP65 (mated)	IP65 (terminated)
Operating Temperature	-40° C - 80° C	-40° C - 80° C	-20° C - 75° C
Conductor Gauge	24 AWG Signal 22 AWG Power	26-20 AWG	24 AWG Signal 22 AWG Power
Bend Radius	67 mm	N/A	67 mm
No. of Bending Cycles	5 Million	N/A	5 Million

Example Sub-Bus Layout and Cabling (DeviceNet™ / CANopen® Network)



Cable	Description	Example Cable Part #	Page
	Power Cable	MC0405MAC0000000	354
	DeviceNet™/CANopen® Communication Cable	MC0505MGD0000000	357
	Sub-Bus Cable	TA0501MGDTC0571P	365
	Alternate Sub-Bus Power Option	TA0401MA0MC04000	355
	I/O Field Wireable Connector	TA04F2000000081E	362
	I/O Connector with Molded Cable	TA0405MIE000071P	362

## Manifold Assembly How to Order



<sup>1</sup> Port Type '8' + 'G' only available in Port Size 3/8

<sup>2</sup> Horizontal end plates only available with Electronics option 'O' - No Electronics

## Maximum Solenoid Outputs

Terminal Strip	25 Pin Sub-D	37 Pin Sub-D	19 Pin Round	G3 Fieldbus
32	22	32	16	32

\*NOTE: Maximum number of valve stations is determined by:

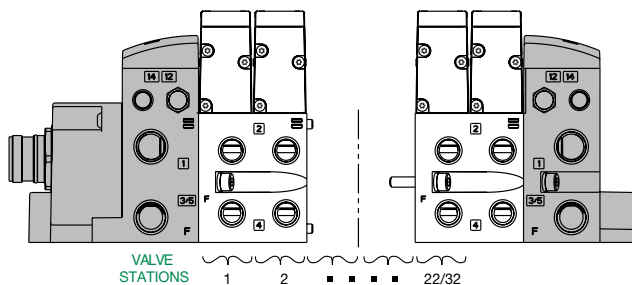
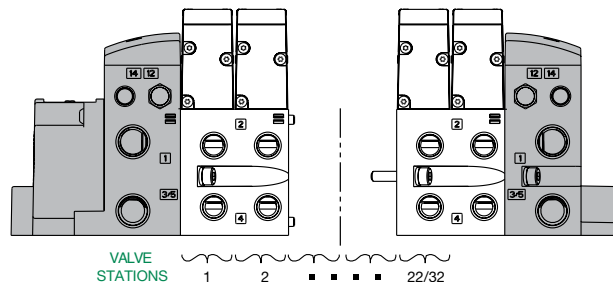
- The electrical connection type.
- The valve type - single solenoid valves up to the maximum solenoid outputs allowed by the electrical connection type (see chart above) or a combination of single and/or double solenoid valves not to exceed the maximum number of solenoid outputs allowed.
- Combination of all stations cannot exceed 32 solenoids

## 25 or 37 Pin Sub-D, Terminal Strip and 19 Pin Round Connector

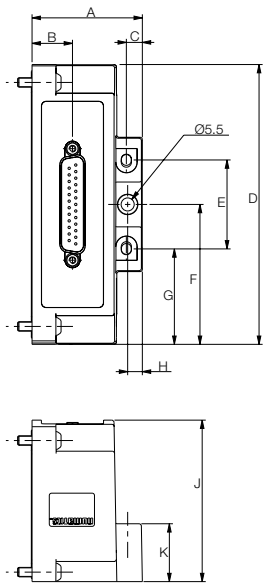
- Shaded components described by Assembly Kit model number designation (see #1, page 59).
- Each valve manifold station is listed in sequential order from left to right when facing the port side of the manifold as indicated.

### Example order:

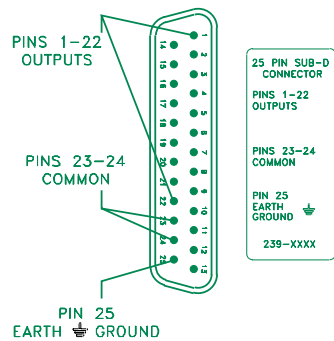
25 PIN SUB-D	8503AVJF300VA00
Valve Station #1	R503A2B40MA0061
Valve Station #2	R503A2B40MA0061
Mounting #1	8503AMM22MA0010
Valve Station #3	R503A2B60MA0061
Valve Station #4	R503A2B60MA0061
Mounting #2	8503AMM22MA0010
Valve Station #5	R503A2B40MA0061
Valve Station #6	R503A2B40MA0061
Mounting #3	8503AMM22MA0010
	ASSEMBLED



25 Pin Sub-D Connector Kit



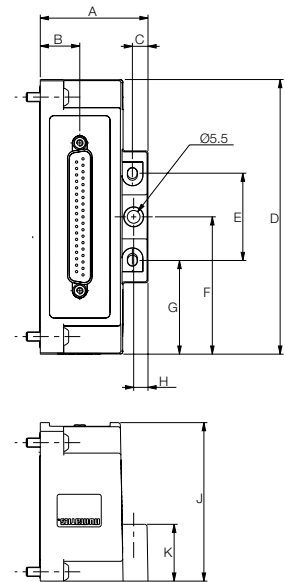
Dimensions: mm (Inches)									
A	B	C	D	E	F	G	H	J	K
46.4 (1.827)	17 (0.669)	6.7 (0.26)	118 (4.65)	37.5 (1.48)	59 (2.32)	40.2 (1.58)	40.2 (1.58)	68.1 (2.68)	24.4 (0.96)



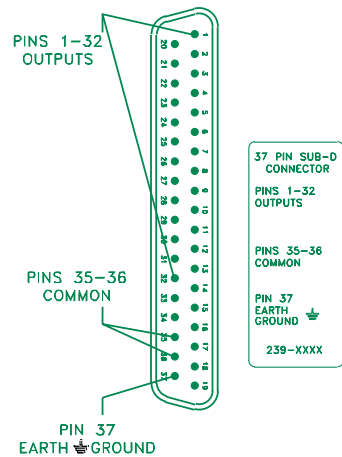
25 Pin Sub-D Connector Housing Kits	
P599AE428441001	25 PIN SUB-D ASSEMBLY WITHOUT DIN RAIL
P599AE428441002	25 PIN SUB-D ASSEMBLY WITH DIN RAIL

NOTE: External fusing or output protection recommended.

37 Pin Sub-D Connector Kit



Dimensions: mm (Inches)									
A	B	C	D	E	F	G	H	J	K
46.4 (1.827)	17 (0.669)	6.7 (0.26)	118 (4.65)	37.5 (1.48)	59 (2.32)	40.2 (1.58)	40.2 (1.58)	68.1 (2.68)	24.4 (0.96)

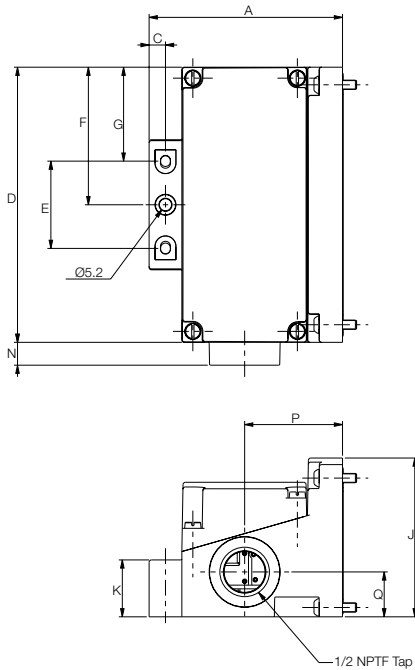


37 Pin Sub-D Connector Housing Kits	
P599AE428442001	37 PIN SUB-D ASSEMBLY WITHOUT DIN RAIL
P599AE428442002	37 PIN SUB-D ASSEMBLY WITH DIN RAIL

NOTE: External fusing or output protection recommended.



1-32 Terminal Strip Kit



Dimensions: mm (Inches)

A	C	D	E	F	G	J	K	N	P	Q
82.7 (3.256)	7 (0.28)	118 (4.65)	37.5 (1.48)	59 (2.32)	40.2 (1.583)	68.1 (2.68)	24.4 (0.96)	9.8 (0.39)	41.9 (1.65)	19.3 (0.76)

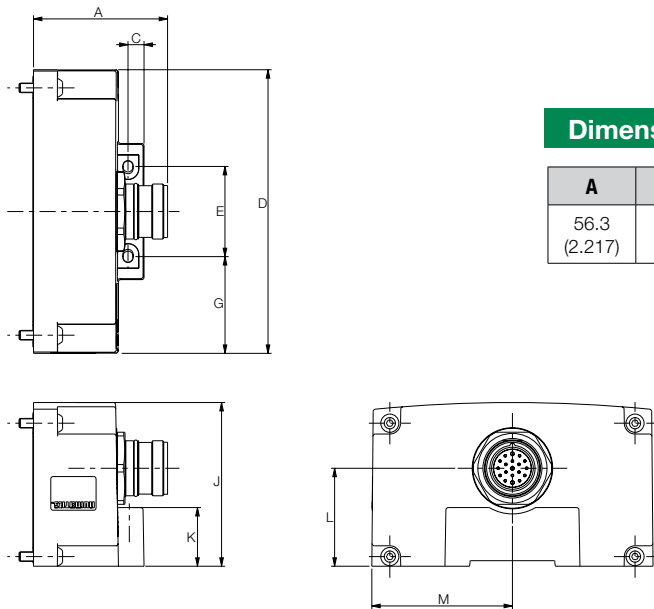
TERMINAL  
STRIP  
TERMINALS  
1-32 OUTPUTS  
TERMINAL COM  
COMMON  
TERMINAL GND  
EARTH  
GROUND  
18 AWG WIRE  
MAXIMUM

1 - 32 Terminal Strip Housing Kits

P599AE428444001	TERMINAL STRIP ASSEMBLY WITHOUT DIN RAIL
P599AE428444002	TERMINAL STRIP ASSEMBLY WITH DIN RAIL

NOTE: External fusing or output protection recommended.  
NOTE: Min. Wire AWG 26  
Max. Wire AWG 18

19 Pin Round Connector Kit



Dimensions: mm (Inches)

A	C	D	E	G	J	K	L	M
56.3 (2.217)	6.7 (0.26)	118 (4.65)	37.5 (1.48)	40.2 (1.583)	68.1 (2.68)	24.4 (0.96)	40.8 (1.61)	59 (2.323)

19 PIN CONNECTOR

PIN 1= COIL 15  
PIN 2= COIL 11  
PIN 3= COIL 7  
PIN 4= COIL 4  
PIN 5= COIL 3  
PIN 6= COMMON  
PIN 7= COIL 2  
PIN 8= COIL 6  
PIN 9= COIL 10  
PIN 10= COIL 14  
PIN 11= COIL 13  
PIN 12= P.E.  
PIN 13= COIL 12  
PIN 14= COIL 8  
PIN 15= COIL 1  
PIN 16= COIL 5  
PIN 17= COIL 9  
PIN 18= COIL 16  
PIN 19= N.C.

19 Pin Round Connector Housing Kits

P599AE428436001	19 PIN ASSEMBLY WITHOUT DIN RAIL
P599AE428436002	19 PIN ASSEMBLY WITH DIN RAIL

NOTE: External fusing or output protection recommended.