



501 Series Panel Mount Solenoid Pilot Actuated Valves

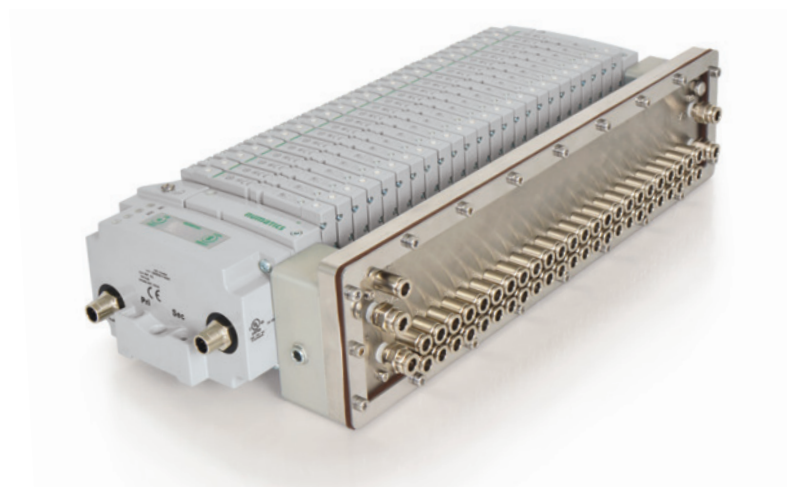


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Fieldbus Electronics

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501 Series – Panel Mount Solution

CE

501 Series Valve

- Solenoid air pilot actuated
- Low wattage 0.8 wall for DC application
- DC solenoids Polarity insensitive with surge suppression
- Plug together circuit boards eliminate internal wiring
- Integral recessed gaskets
- Push-In Fittings to accommodate various tube sizes
- Simple conversion from internal to external pilot
- IP66 Certified
- Environmental Type Rating: NEMA 1, 4, 4X



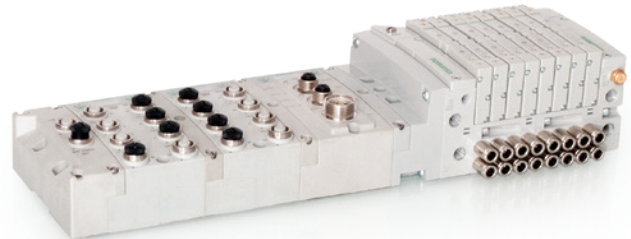
Panel Mount Options

- Elimination of tubing and connections
- Adapter plate for direct mounting to cabinet walls
- Stainless steel or aluminum plate for 8, 12, 16, or 24 station manifolds
- Shut Off block for individual valve to be isolated from pressure supply during operation and repair

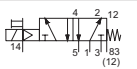
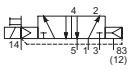
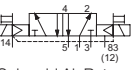
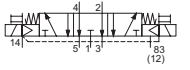
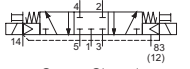
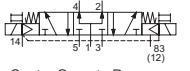
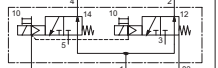
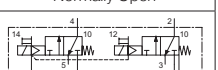


Fieldbus Electronics Compatible

- G3 Fieldbus Electronics
 - Graphic Display for easy commissioning, visual status & diagnostics
 - Easy distribution of additional manifolds through Sub-bus communication
 - One Node supports up to 16 I/O modules
 - Available with Auto Recovery Module (ARM) which allows configuration information to be saved and reloaded to replacement module automatically
- 580 Fieldbus Electronics
 - Graphic Display for easy commissioning, visual status & diagnostics
- 580 CHARM Electronics
 - Provides single connection from the field to DeltaV™ with Electronic Marshalling
 - Connects directly to the CHARM I/O baseplate via 2 cables which attach to CHARM column extender
 - Configures the same as any other CHARM on DeltaV™
 - Uses native capabilities of DeltaV™ for diagnostics of pneumatic valves
 - Brings CIOC (CHARM I/O Card) redundant communication and power connections to pneumatic valve manifolds



Performance Data

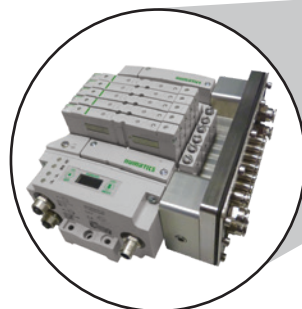
Function Type	Function Code	ISO Symbol Pilot (14) Return (12)	Interface	Rated Flow at 90 PSI Cv (l/min (ANR))		Response Time (ms)	Pilot Pressure at 73 °F/23 °C PSI (bar)		Operating Pressure Port 1 PSI (bar)/InHg (-bar)		Part Number	
				1 ➡ 2 1 ➡ 4	2 ➡ 3 4 ➡ 5		Energize/ De-Energize	min (Internal)	max (External)	min		max
				Rubber Packed Technology, with Manual Override								
5/2	B1	 Spring Return	Proprietary	0.460 (460)	0.465 (465)	14/29	29 (2)	115 (8)	28 (-0.95)	115 (8)	R501A2B10MA00F1	
	BN	 Differential Air Return		0.460 (460)	0.465 (465)	25/21	29 (2)	115 (8)	28 (-0.95)	115 (8)	R501A2BN0MA00F1	
	B4	 Solenoid Air Return		0.460 (460)	0.465 (465)	11	29 (2)	115 (8)	28 (-0.95)	115 (8)	R501A2B40MA00F1	
5/3	B5	 Center Open to Exhaust		0.420 (420)	0.470 (470)	27/12	29 (2)	115 (8)	28 (-0.95)	115 (8)	R501A2B50MA00F1	
	B6	 Center Closed		0.460 (460)	0.465 (465)	13/12	29 (2)	115 (8)	28 (-0.95)	115 (8)	R501A2B60MA00F1	
	B7	 Center Open to Pressure		0.460 (460)	0.411 (411)	17/38	36 (2.5)	115 (8)	28 (-0.95)	115 (8)	R501A2B70MA00F1	
2 x 3/2 NO	BA	 Normally Open		0.450 (450)	0.450 (450)	18/18	0.3 x Operating Pressure + 13 PSI	115 (8)	30 (2)	115 (8)	R501A2BA0MA00F1	
2 x 3/2 NC	BD	 Normally Closed		0.460 (460)	0.470 (470)	18/18	0.09 x Operating Pressure + 33.5 PSI	115 (8)	30 (2)	115 (8)	R501A2BD0MA00F1	

Construction

Materials in Contact w/Fluid	
Body	Aluminum, E-Coating Treatment
Spool	Aluminum or Stainless Steel
Piston	POM
Spring	Steel
Spool Seals	NBR + PUR
Other Seals	NBR + FKM
Other Materials	PAM (Polyarylamide) 50% Glass Fiber Reinforced
Valve to Subbase Gasket	NBR
Subbases	Aluminum, E-Coating Treatment

Operating Data

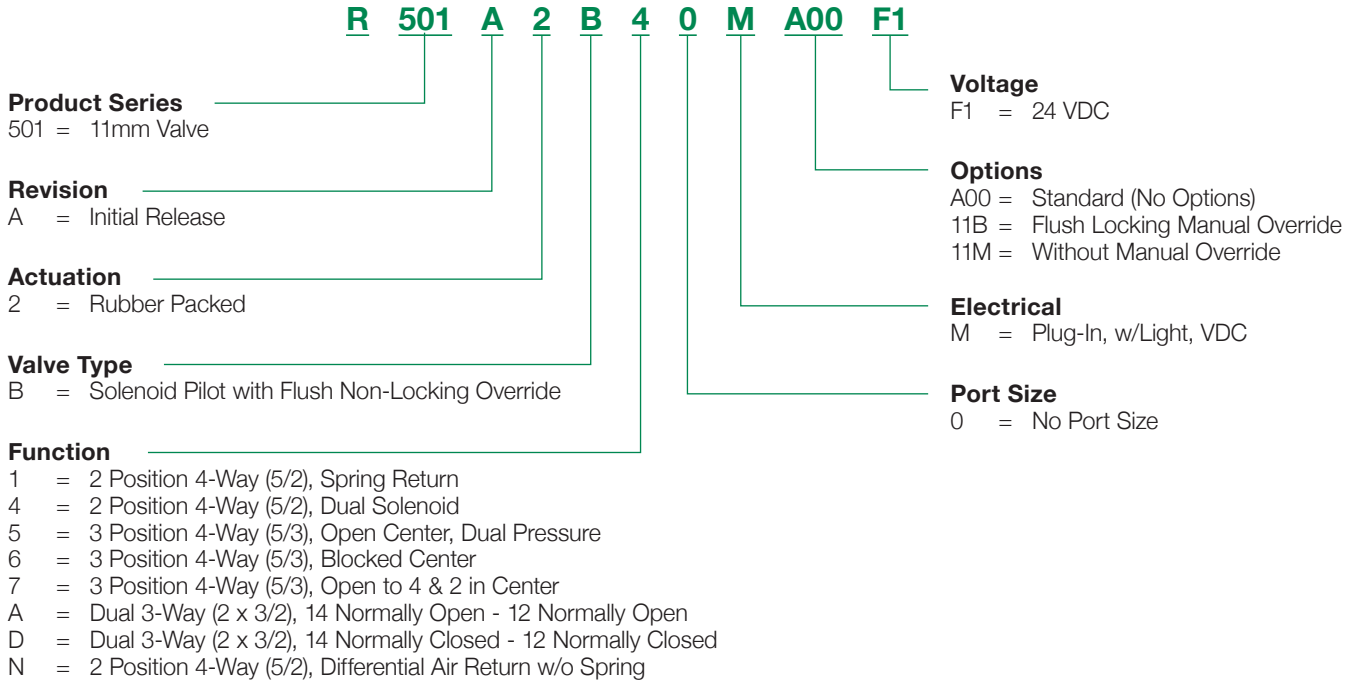
All Solenoids Are Continuous Duty Rated	24 VDC
Power (Watts)	0.8
Holding Current (Amps)	0.025
Ambient Temperature Range min/max °F (°C)	-14 °F (-10 °C)/122 °F (50 °C)



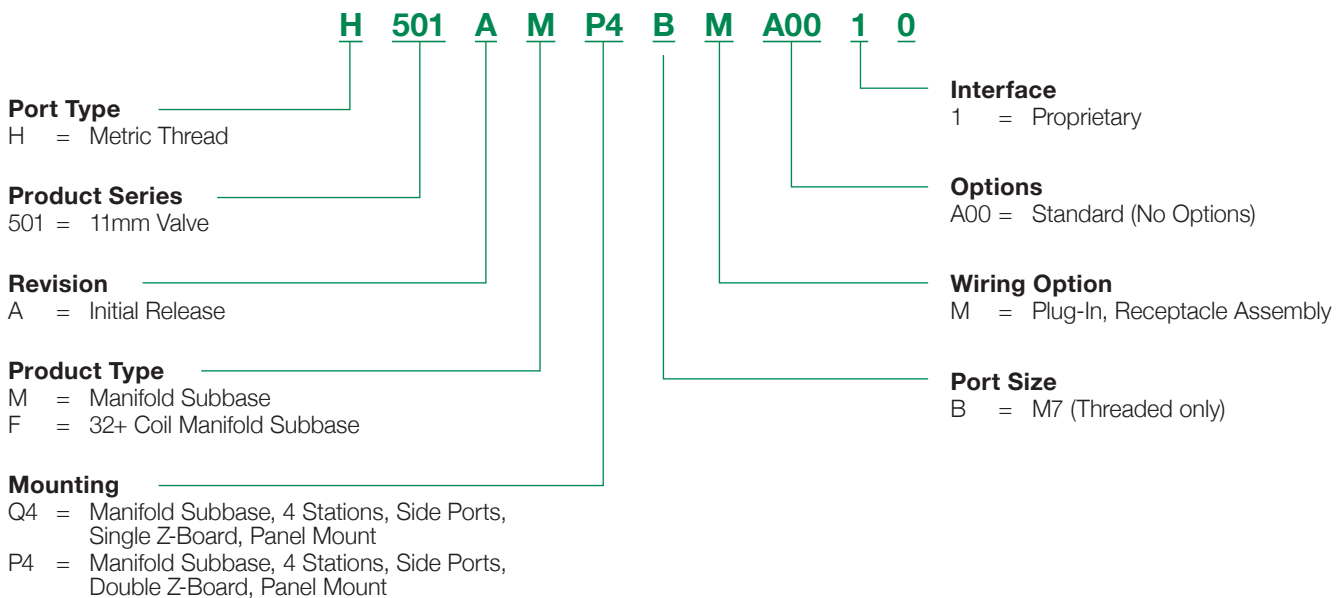
NOTE: The 501 Series Panel Mount achieves NEMA/UL type 1, 4, 4X, and IP 66 protection class when mounted in a NEMA/UL rated enclosure.

How to Order

Valve



Mounting



How to Order

Panel Mount Kit

K 501 A C S H 2 F S 0 A00

Port Type

- 8 = NPTF
- G = ISO 228/1-G
- K = Push-In Fittings

Product Series

- 501 = 11mm Valve

Revision

- A = Initial Release

Product Type

- C = Panel Mount Assembly

Plate Style

- A = Aluminum
- ¹ S = 316 Stainless Steel
- ^{1 & 2} V = 316 Stainless Steel w/Vertical Shut Off

Number of Valve Stations

- H = 8
- L = 12
- P = 16
- X = 24

Options

- A00 = Standard (No Options)
- 83F = External Mounting Flange

Fitting Type

- 0 = No Fittings
- F = Nickel Plated Brass Fitting w/FKM O-Ring
- N = Nickel Plated Brass Fitting w/NBR O-Ring
- S = Stainless Steel Fitting w/FKM O-Ring

Working Port Size (Ports 2, 4)

- B = M7 (Threaded only)
- ³ D = 4mm (Push-In Fittings only)
- F = 6mm (Push-In Fittings only)
- 2 = 1/4 (Push-In Fittings only)

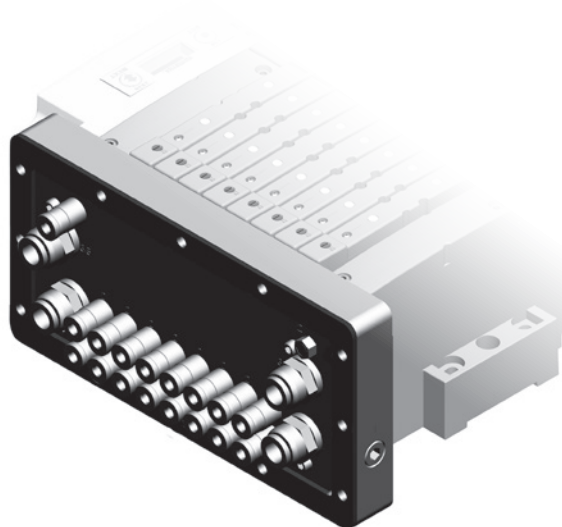
Supply and Exhaust Port Size (Ports 1, 3/5)

- 1 = 1/8 (Threaded only)
- 2 = 1/4 (Push-In Fittings)
- G = 5/16 (Push-In Fittings)
- H = 8mm (Push-In Fittings)

¹ Plate Styles S and V available with Fitting Type 0 or S only

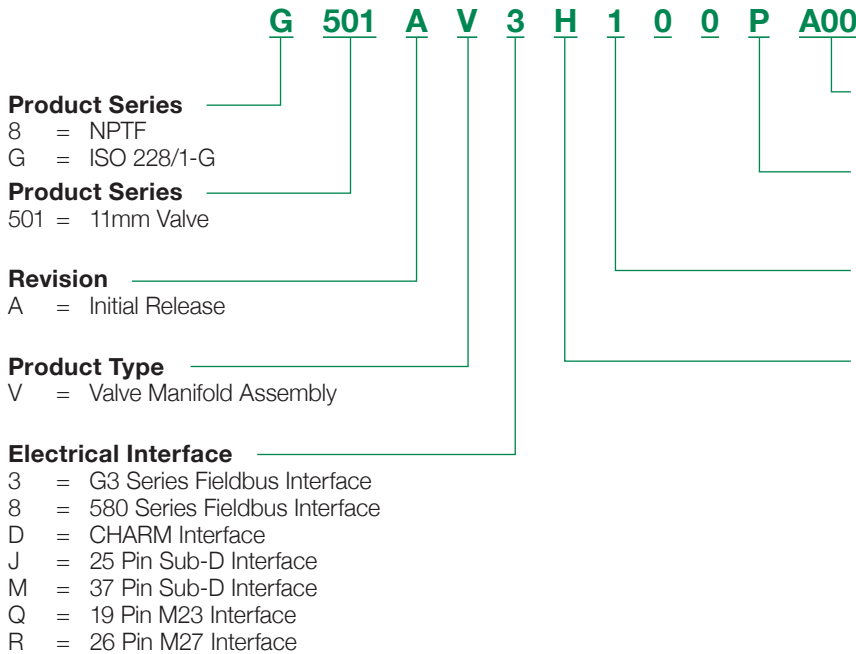
² Plate Style V and Option 83F must be selected together

³ Working Port Size D available with Plate Style A only



How to Order

501 Series Manifold Assembly for Panel Mount



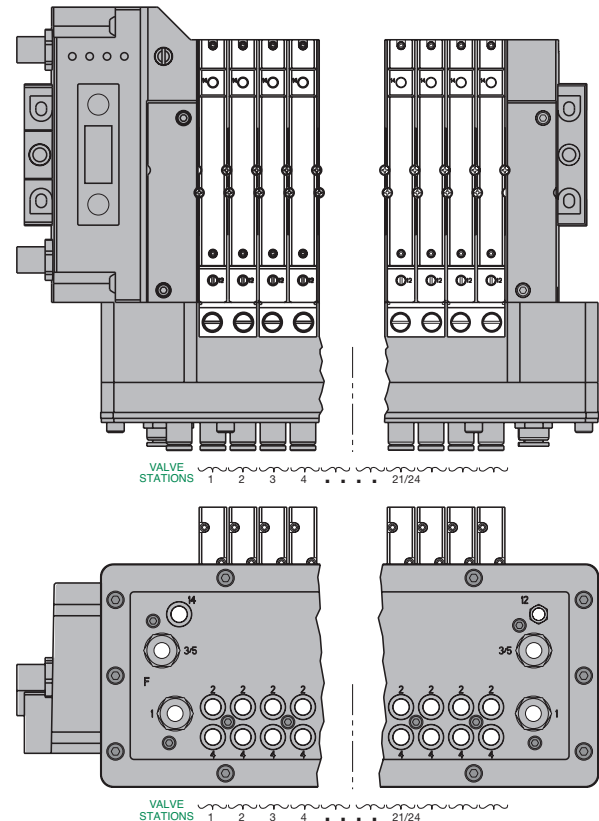
NOTE: See the Multipin Electrical Interface table for Max Solenoid Outputs.

Sub-D and Round Interface

- Shaded components described by Assembly Kit model number designation
- 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 - 501 24-Station Panel Assembly Shown

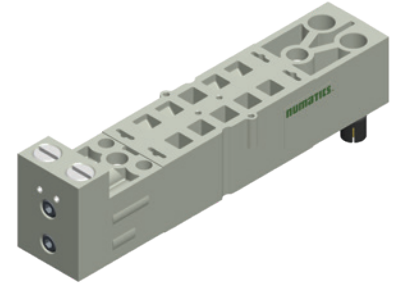
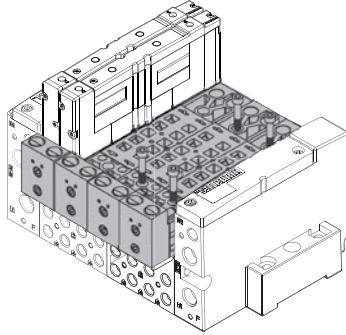
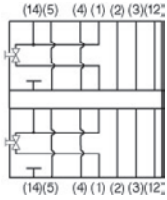
501 Series Assembly Kit	8501AV8X100PA00
Valve Station #1	R501A2B40MA00F1
Valve Station #2	R501A2B40MA00F1
Valve Station #3	R501A2B40MA00F1
Valve Station #4	R501A2B40MA00F1
Mounting #1	H501AMP4BMA0010
Mounting #5 (501 Series 64 Solenoid Manifold Subbase)	H501AFP4BMA0010
Valve Station #21	R501A2B40MA00F1
Valve Station #22	R501A2B40MA00F1
Valve Station #23	R501A2B40MA00F1
Valve Station #24	R501A2B40MA00F1
Mounting #6	H501AMP4BMA0010
580 Fieldbus Electronics	P580AEED1010A00
501 Series 24-Station Panel Mount Kit	8501ACSX1B00A00
	Assembled



NOTE: For example order for Fieldbus Electronics, see 580 or G3 Fieldbus catalog.

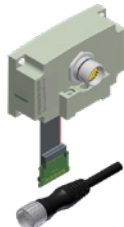
Vertical Shut Off Block Kit

- 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
R501AY503875001	Proprietary Vertical Shut Off Kit

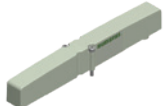
Multipin Electrical Interface

Multipin Electrical Interface	Product Image (Example Only)	Description	Part Number		Notes	Max # of Coils*
			501, 502 & 503 Series			
25 Pin Sub-D Interface		Housing Kit Assembly w/o DIN Rail Clamps	P599AE428441001		External fusing or output protection recommended.	22
		Housing Kit Assembly w/DIN Rail Clamps	P599AE428441002			
		Female Cable 22 AWG - Unshielded, Standard	2m	SC2502MCX00000000	-	
			5m	SC2505MCX00000000		
			10m	SC2510MCX00000000		
		Female Cable 22 AWG - Unshielded IP65	2m	NDB25F22U02MSB4	-	
			5m	NDB25F22U05MSB4		
			10m	NDB25F22U10MSB4		
37 Pin Sub-D Interface		Housing Kit Assembly w/o DIN Rail Clamps	P599AE428442001		External fusing or output protection recommended.	32
		Housing Kit Assembly w/DIN Rail Clamps	P599AE428442002			
		Female Cable 22 AWG - Unshielded, Standard	2m	SC3702MCX00000000	-	
			5m	SC3705MCX00000000		
			10m	SC3710MCX00000000		
		Female Cable 22 AWG - Unshielded IP65	2m	NDB37F22U02MSB4	-	
			5m	NDB37F22U05MSB4		
			10m	NDB37F22U10MSB4		
19 Pin M23 Interface		Housing Kit Assembly w/o DIN Rail Clamps	P599AE428436001		External fusing or output protection recommended.	16
		Housing Kit Assembly w/DIN Rail Clamps	P599AE428436002			
		M23 Female Cable	5m	CC1905MI00000000	-	
			10m	CC1910MI00000000		
26 Pin M27 Interface		Housing Kit Assembly w/o DIN Rail Clamps	P599AE502625001		External fusing or output protection recommended.	22
		Housing Kit Assembly w/DIN Rail Clamps	P599AE502625002			
		M27 Female Cable	5m	CC2605MI00000000	-	
			10m	CC2610MI00000000		

* 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.

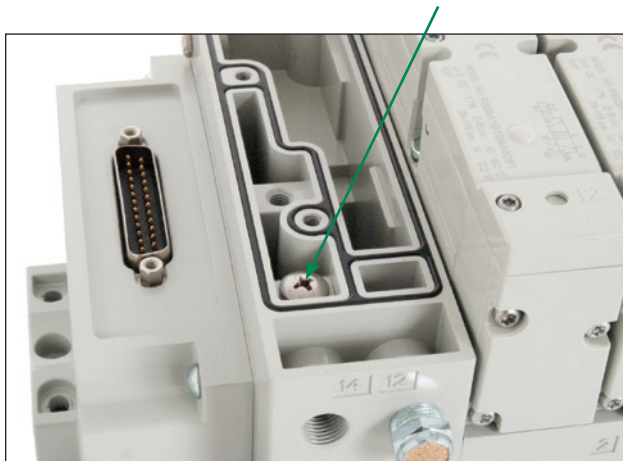
Accessories Kit

Accessories Kit	Product Image (Example Only)	Description			Port Number	Part Number	
						501 Series (11mm)	
Blank Station Plate Kit		Used to block off a manifold station for future use.			–	P501AB429685001	
Blocking Disc Kit		Used to isolate 1, 3 & 5 galleries of the manifold internally. NOTE: Includes tag to label ports blocked.			1	P501AD431915001	
					3	P501AD431915002	
					5	P501AD431915003	
					1 + 3	P501AD431915004	
					1 + 5	P501AD431915005	
					3 + 5	P501AD431915006	
					1, 3, 5	P501AD431915007	
Internal Muffler Element		Muffler element			–	427991-001	
		Thread Type	Tube Size	Qty.	501 Series (11mm)		
					Stainless Steel	Nickel Plated Brass	
					w/FKM O-Ring	w/NBR O-Ring	w/FKM O-Ring
Fittings		M7	4mm	10/25*	–	H850A104B004N10	H850A104B004F10
			6mm	10/25*	H851A104B104F10	H850A104B006N10	H850A104B006F10
			1/4	10/25*	H851A104B004F10	H850A104B104N10	H850A104B104FN10

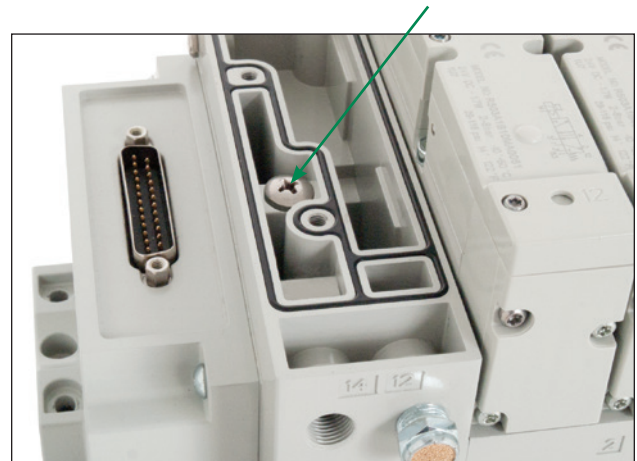
* Number of fittings per bag is determined by the last two digits in the part number.
For example, H850A10B104F10 (10 fittings per bag) or H850A10B104F25 (25 fittings per bag).

Manifold Assembly

Internal Pilot Supply Plug Location



External Pilot Supply Plug Location

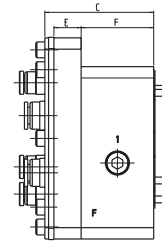
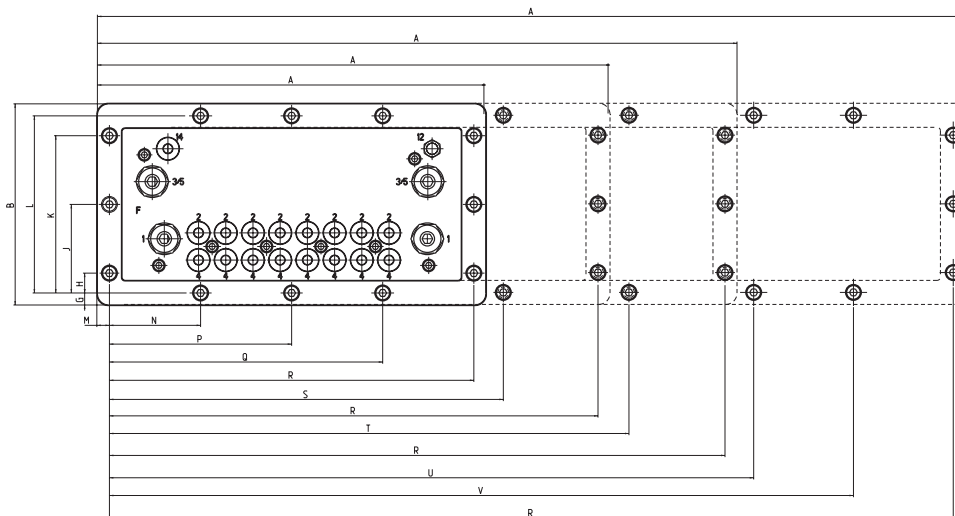
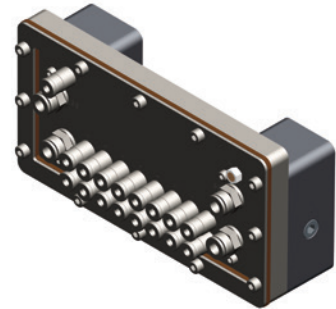
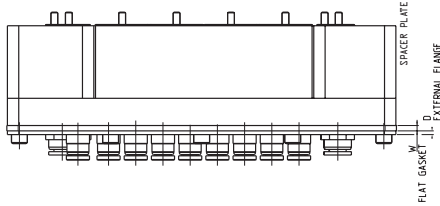


NOTE: Manifold Assemblies are factory set for internal pilot supply. To convert to external pilot supply, install pilot supply seal screws – 501 Series: 127-803, 502 & 503 Series: 426188-001 – as shown in the pictures.

Dimensions: mm (inches)

Panel Mount Kit

8-Station, 12-Station, 16-Station & 24-Station

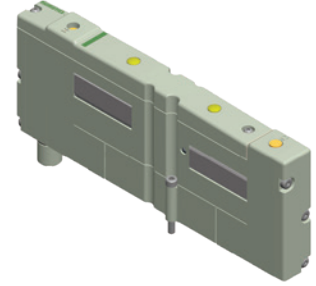
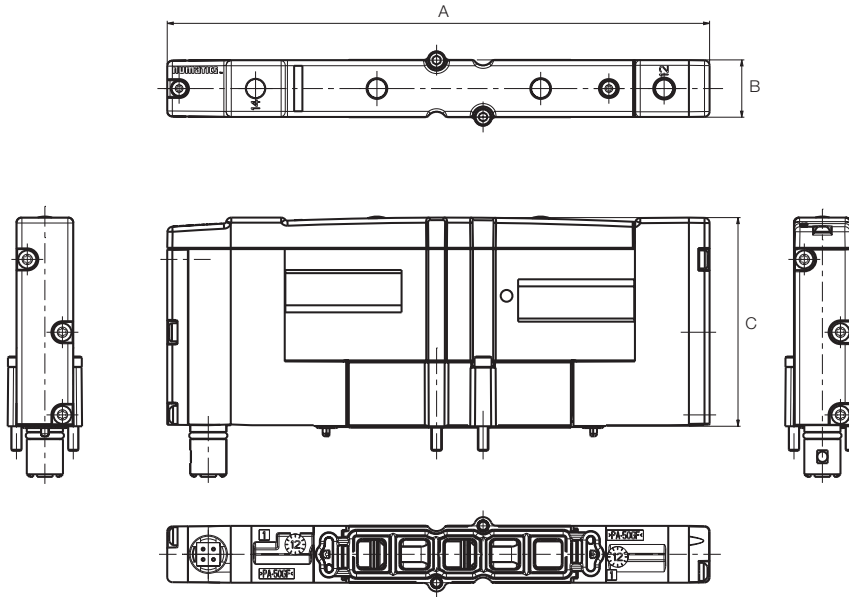


Stations	Weight lbs (kg)					
	Stainless Steel Panel Plate	Stainless Steel Panel Plate for Vertical Shut Off Block	Aluminum Panel Plate	Spacer Plate	External Support Flange	Flat Gasket
8	1.49 (0.68)	2.99 (1.36)	1.49 (0.68)	1.73 (0.79)	0.17 (0.08)	0.05 (0.02)
12	5.66 (2.57)	3.85 (1.75)	1.91 (0.87)	2.12 (0.96)	0.20 (0.09)	0.06 (0.03)
16	6.92 (3.14)	4.69 (2.13)	2.33 (1.06)	2.51 (1.14)	0.24 (0.11)	0.07 (0.03)
24	9.41 (4.27)	6.37 (2.89)	3.17 (1.44)	3.28 (1.49)	0.31 (0.14)	0.09 (0.04)

Stations	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W
8	171.3 (6.74)	88.7 (3.49)	48.0 (1.89)	2.0 (0.08)	12.0 (0.47)	32.0 (1.26)	5.3 (0.21)	8.75 (0.34)	39.05 (1.54)	69.35 (2.73)	78.1 (3.07)	5.3 (0.21)	40.2 (1.58)	80.35 (3.16)	120.5 (4.74)	160.7 (6.33)	-				2.36 (0.09)
12	219.3 (8.63)	88.7 (3.49)	48.0 (1.89)	2.0 (0.08)	12.0 (0.47)	32.0 (1.26)	5.3 (0.21)	8.75 (0.34)	39.05 (1.54)	69.35 (2.73)	78.1 (3.07)	5.3 (0.21)	41.75 (1.64)	83.5 (3.29)	125.2 (4.93)	208.7 (8.22)	166.95 (6.57)	-			2.36 (0.09)
16	267.3 (10.52)	88.7 (3.49)	48.0 (1.89)	2.0 (0.08)	12.0 (0.47)	32.0 (1.26)	5.3 (0.21)	8.75 (0.34)	39.05 (1.54)	69.35 (2.73)	78.1 (3.07)	5.3 (0.21)	42.35 (1.67)	85.35 (3.36)	128.35 (5.05)	256.7 (10.11)	171.35 (6.75)	214.35 (8.44)	-		2.36 (0.09)
24	363.3 (14.3)	88.7 (3.49)	48.0 (1.89)	2.0 (0.08)	12.0 (0.47)	32.0 (1.26)	5.3 (0.21)	8.75 (0.34)	39.05 (1.54)	69.35 (2.73)	78.1 (3.07)	5.3 (0.21)	44.0 (1.73)	88.0 (3.46)	132.0 (5.2)	352.0 (13.86)	176.0 (6.93)	220.0 (8.66)	264.0 (10.39)	308.0 (12.13)	2.36 (0.09)

Dimensions: mm (inches)

501 Series Plug-In Valve



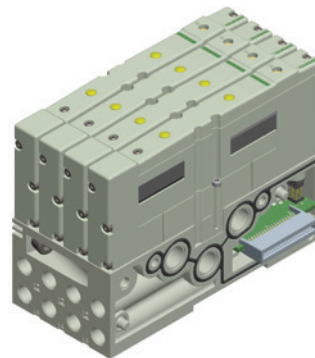
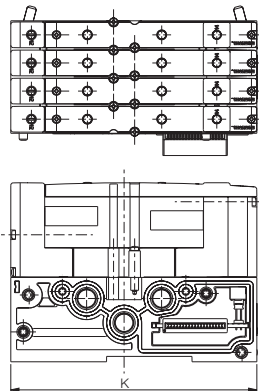
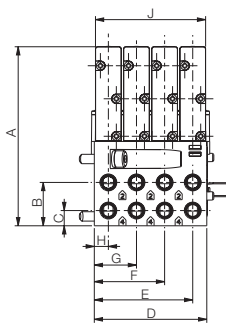
501 SERIES
DIMENSIONAL DRAWINGS

Weight	Valve Body	Manifold Block		End Plates
		3-Station	4-Station	
lbs	0.205	0.50	0.60	1.20
kg)	(0.093)	(0.23)	(0.27)	(0.54)

A	B	C
105 (4.13)	11 (0.43)	40.4 (1.59)

Dimensions: mm (inches)

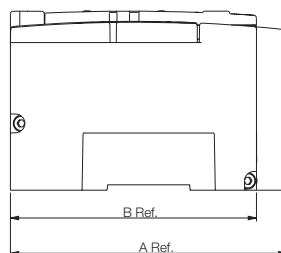
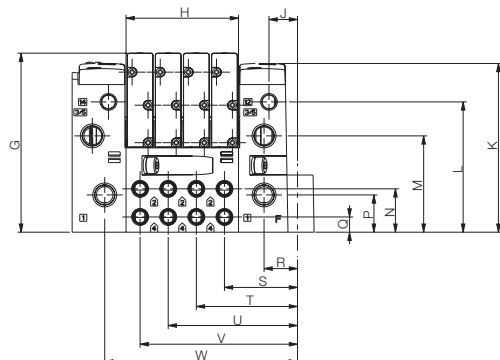
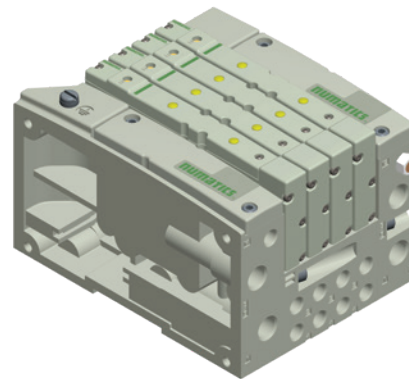
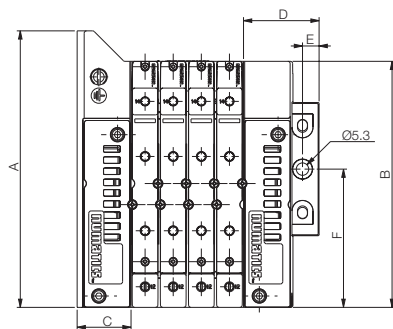
**Plug-In Valve Mounted
4-Station Manifold Block**



A	B	C	D	E	F	G	H	J	K
76.4 (3.008)	18.5 (0.728)	6.5 (0.256)	48 (1.890)	42 (1.653)	30 (1.181)	18 (0.709)	6 (0.236)	47 (1.850)	105 (4.134)

Dimensions: mm (inches)

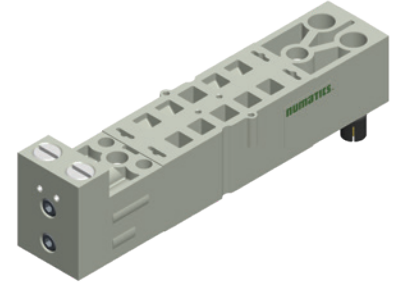
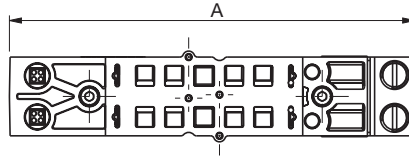
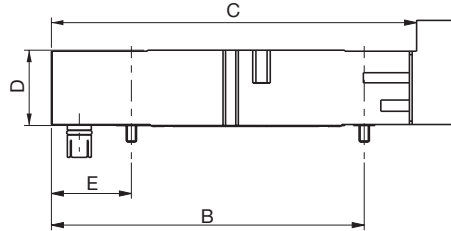
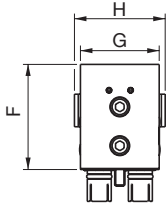
**Plug-In Valve Mounted
4-Station Manifold Assembly**



A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W
118 (4.65)	105 (4.13)	23 (0.90)	32.3 (1.27)	7.1 (0.28)	59 (2.32)	76.4 (3.01)	48 (1.89)	12.2 (0.48)	72 (2.83)	55.6 (2.19)	41.1 (1.62)	18.5 (0.73)	15.9 (0.63)	6.5 (0.26)	14.3 (0.56)	31.2 (1.23)	43.2 (1.70)	55.2 (2.17)	67.2 (2.65)	82.3 (3.24)

Dimensions: mm (inches)

Vertical Shut Off Block Kit



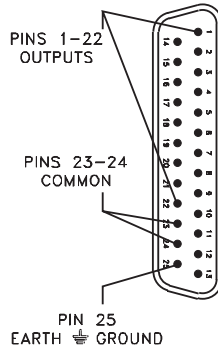
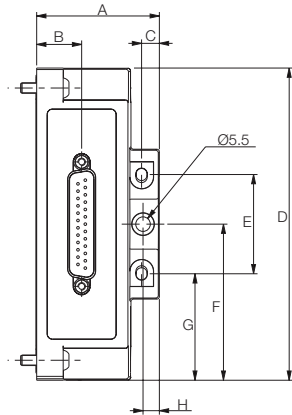
Weight
lbs (kg)
0.20 (0.09)

A	B	C	D	E	F	G	H
118.35 (4.659)	91.35 (3.596)	106.65 (4.199)	22 (0.866)	23.35 (0.919)	30.7 (1.209)	23 (0.906)	26.5 (1.043)

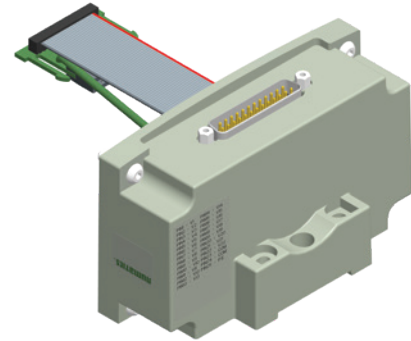
MULTIPIN ELECTRICAL INTERFACE

Dimensions: mm (inches)

25 Pin Sub-D Connector Kit



PIN1 = V1	PIN14 = V14
PIN2 = V2	PIN15 = V15
PIN3 = V3	PIN16 = V16
PIN4 = V4	PIN17 = V17
PIN5 = V5	PIN18 = V18
PIN6 = V6	PIN19 = V19
PIN7 = V7	PIN20 = V20
PIN8 = V8	PIN21 = V21
PIN9 = V9	PIN22 = V22
PIN10 = V10	PIN23 = COM
PIN11 = V11	PIN24 = COM
PIN12 = V12	PIN25 = P.E.
PIN13 = V13	



Weight

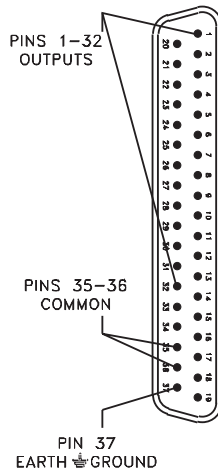
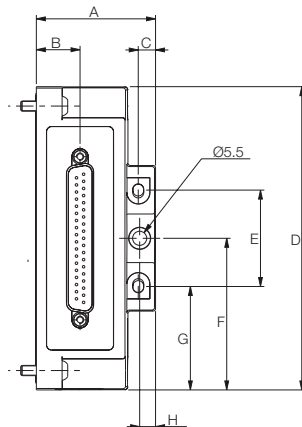
lbs (kg)

0.70
(0.32)

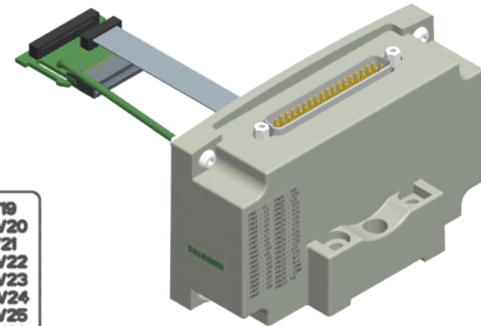
A	B	C	D	E	F	G	H	J	K
46.4 (1.827)	17 (0.669)	6.7 (0.26)	118 (4.65)	37.5 (1.48)	59 (2.32)	40.2 (1.58)	6.7 (0.26)	68.1 (2.68)	24.4 (0.96)

Dimensions: mm (inches)

37 Pin Sub-D Connector Kit



PIN1 = V1	PIN19 = V19
PIN2 = V2	PIN20 = V20
PIN3 = V3	PIN21 = V21
PIN4 = V4	PIN22 = V22
PIN5 = V5	PIN23 = V23
PIN6 = V6	PIN24 = V24
PIN7 = V7	PIN25 = V25
PIN8 = V8	PIN26 = V26
PIN9 = V9	PIN27 = V27
PIN10 = V10	PIN28 = V28
PIN11 = V11	PIN29 = V29
PIN12 = V12	PIN30 = V30
PIN13 = V13	PIN31 = V31
PIN14 = V14	PIN32 = V32
PIN15 = V15	PIN33 = N/A
PIN16 = V16	PIN34 = N/A
PIN17 = V17	PIN35 = COM
PIN18 = V18	PIN36 = COM
	PIN37 = P.E.



Weight

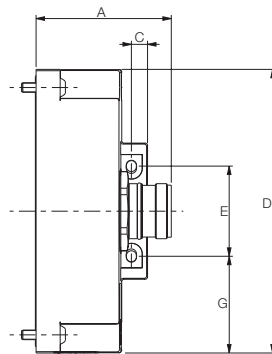
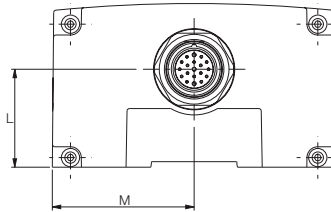
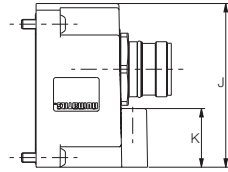
lbs (kg)

0.70
(0.32)

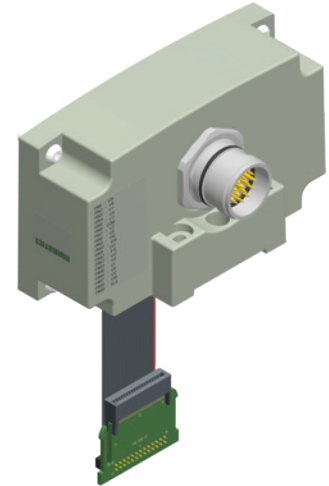
A	B	C	D	E	F	G	H	J	K
46.4 (1.827)	17 (0.669)	6.7 (0.26)	118 (4.65)	37.5 (1.48)	59 (2.32)	40.2 (1.58)	6.7 (0.26)	68.1 (2.68)	24.4 (0.96)

Dimensions: mm (inches)

19 Pin M23 Connector Kit



PIN1	•	V15
PIN2	•	V11
PIN3	•	V7
PIN4	•	V4
PIN5	•	V3
PIN6	•	COM
PIN7	•	V2
PIN8	•	V6
PIN9	•	V10
PIN10	•	V14
PIN11	•	V13
PIN12	•	P.E.
PIN13	•	V12
PIN14	•	V8
PIN15	•	V1
PIN16	•	V5
PIN17	•	V9
PIN18	•	V16
PIN19	•	N/A

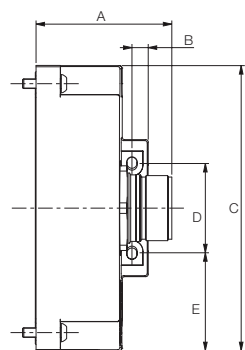
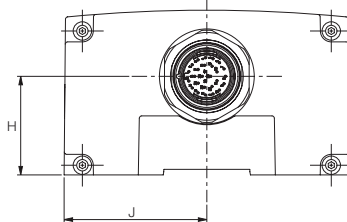
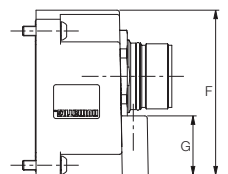


Weight	
lbs (kg)	
0.70	(0.32)

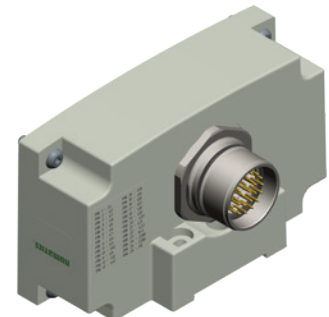
A	C	D	E	G	J	K	L	M
56.3	6.7	118	37.5	40.2	68.1	24.4	40.8	59
(2.217)	(0.26)	(4.65)	(1.48)	(1.583)	(2.68)	(0.96)	(1.61)	(2.323)

Dimensions: mm (inches)

26 Pin M27 Connector Kit



PIN18	•	V18	PIN18	•	P.E.
PIN17	•	V17	PIN17	•	COM
PIN16	•	V16	PIN16	•	COM
PIN15	•	V15	PIN15	•	N/A
PIN14	•	V14	PIN14	•	V32
PIN13	•	V13	PIN13	•	V31
PIN12	•	V12	PIN12	•	V30
PIN11	•	V11	PIN11	•	V29
PIN10	•	V10	PIN10	•	V28
PIN9	•	V9	PIN9	•	V27
PIN8	•	V8	PIN8	•	V26
PIN7	•	V7	PIN7	•	V25
PIN6	•	V6	PIN6	•	V24
PIN5	•	V5	PIN5	•	V23
PIN4	•	V4	PIN4	•	V22
PIN3	•	V3	PIN3	•	V21
PIN2	•	V2	PIN2	•	V20
PIN1	•	V1	PIN1	•	V19



Weight	
lbs (kg)	
0.70	(0.32)

A	B	C	D	E	F	G	H	J
56.1	6.7	118	37.5	40.2	68.1	24.4	40.8	59
(2.209)	(0.264)	(4.65)	(1.48)	(1.58)	(2.68)	(0.961)	(1.61)	(2.32)



Fieldbus Electronics

G3 | Communication Node and I/O

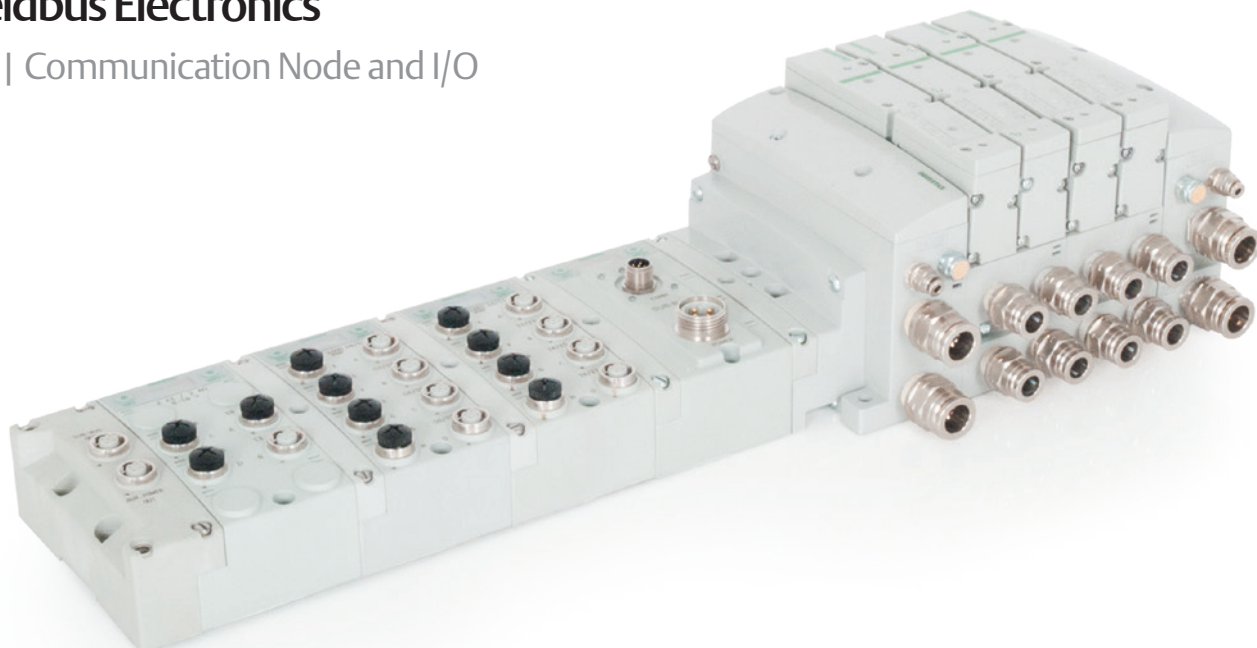


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G3 Fieldbus - Electronics Made Easy!

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

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 ½ turn I/O connector attachment
- Power connector allows output power to be removed while inputs and communication are left active
- IP65 protection
- Up to 1,200 Input/1,200 Output capability with one communication node!
- Up to 128 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
- Integrated web server with EtherCAT®, EtherNet/IP™, EtherNet/IP™ DLR, Ethernet POWERLINK®, Modbus® TCP/IP, and PROFINET™
- 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

*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 page 54 for cables with SPEEDCON® connector technology



Graphic Display for Configuration & Diagnostics



Auto Recovery Module



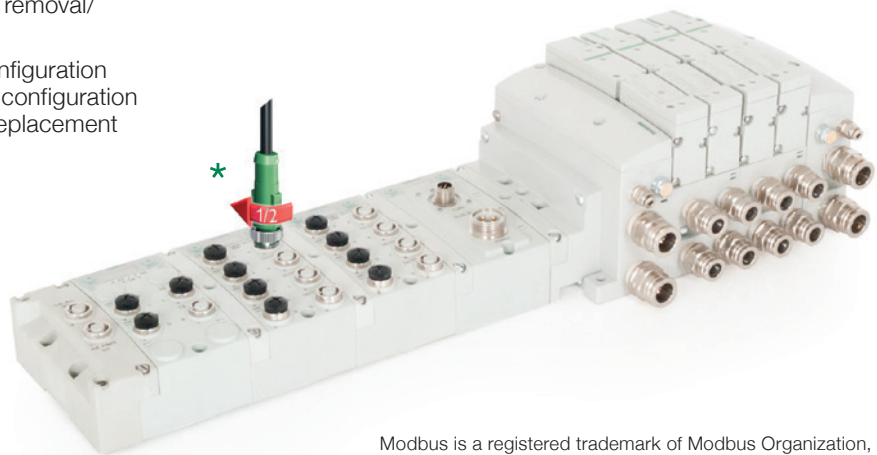
Highly Distributable



Easy, Robust Connections

Supported Protocols

- CANopen®
- CC-Link IE Field™
- DeviceNet™
- DeviceNet™ w/ QuickConnect™
- EtherCAT®
- EtherNet/IP™
- EtherNet/IP™ DLR w/ QuickConnect™
- Ethernet POWERLINK®
- Modbus® TCP/IP
- PROFIBUS™ DP
- PROFINET™



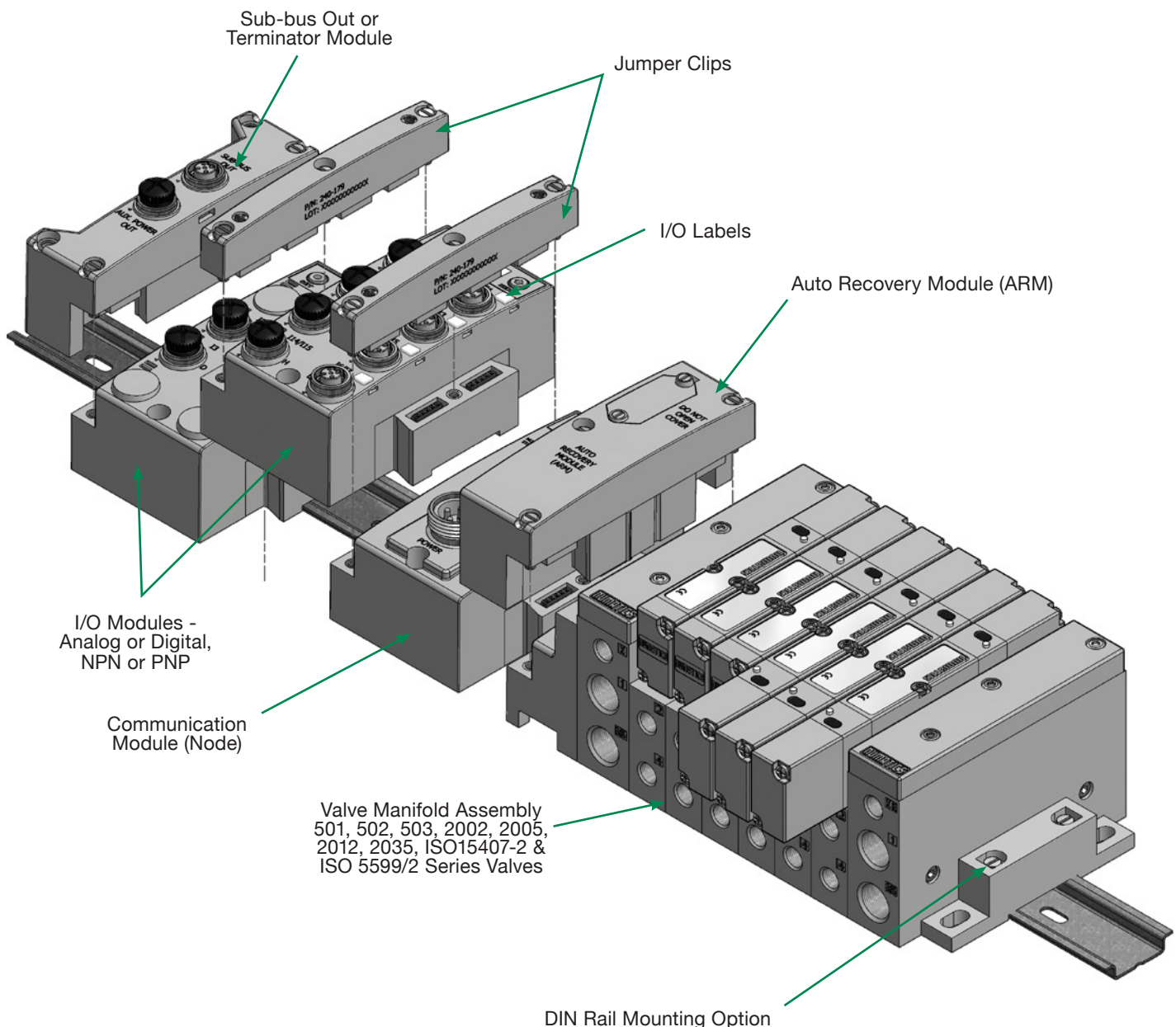
Modbus is a registered trademark of Modbus Organization, Inc.
EtherNet/IP, DeviceNet and QuickConnect are trademarks of ODVA.
EtherCAT is a registered trademark of the EtherCAT Technology Group.
CANopen is a registered Community trademark of CAN in Automation e.V.
PROFIBUS and PROFINET are trademarks of Profibus Nutzerorganisation e.V.
Ethernet POWERLINK is a registered trademark of Bernecker + Rainer Industrie – Elektronik Ges.m.b.H.
CC-Link is a registered trademark and CC-Link IE Field is a trademark of the CC-Link Partner Association.

G3 Electronics Modularity

Discrete I/O

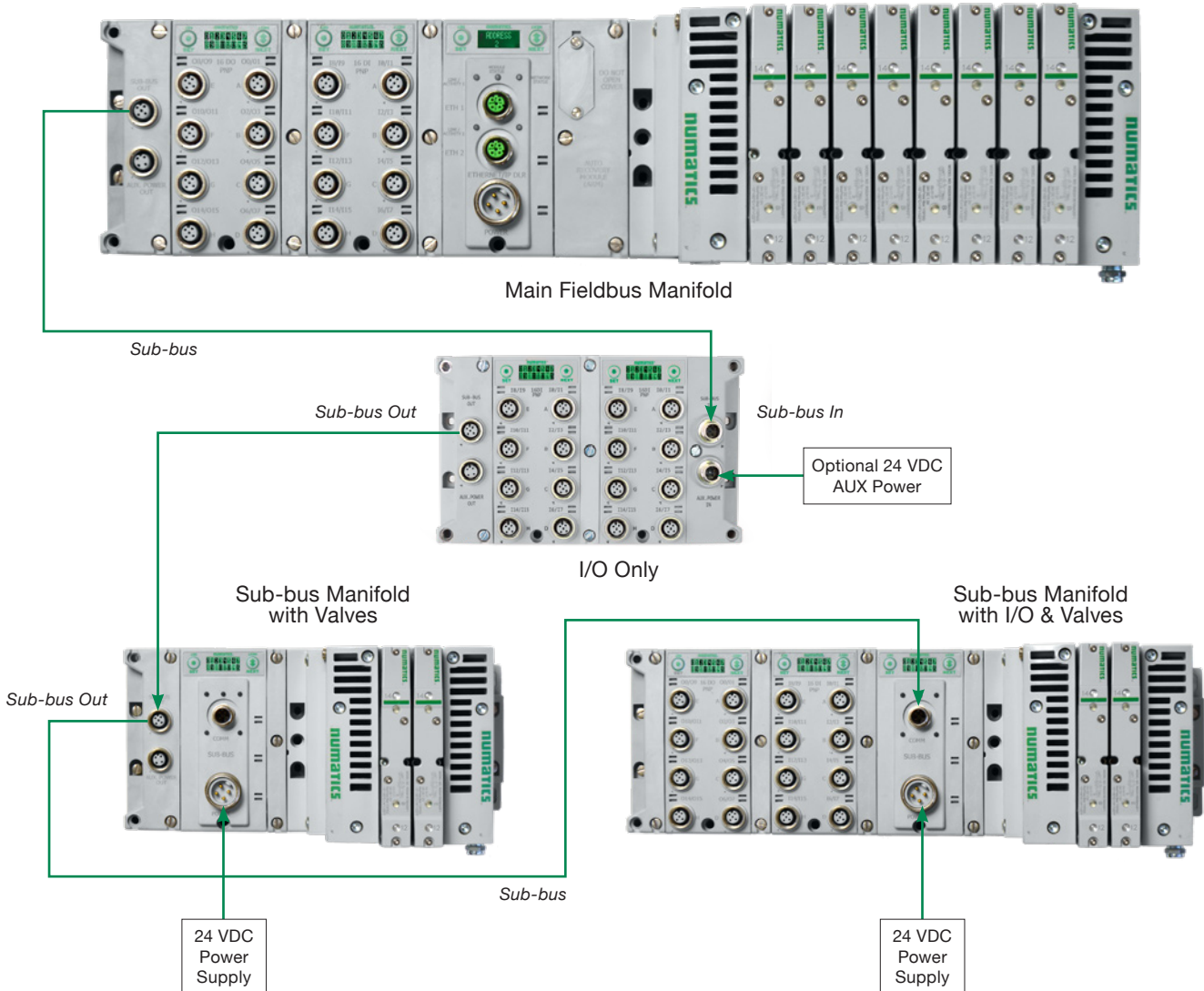
The G3 Series product line is a completely modular system. All of the G3 electronic modules plug together, via mechanical clips, allowing easy assembly and field changes. This makes the system highly distributable. Additional flexibility is incorporated because the same modules can be used in either centralized or distributed applications.

The G3 electronics interfaces with the highly modular Numatics 500 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. 500 Series valves allow up to 128 valve solenoids per manifold when properly configured. An external air pilot supply may be required with more than 32 valve solenoids on a manifold.



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

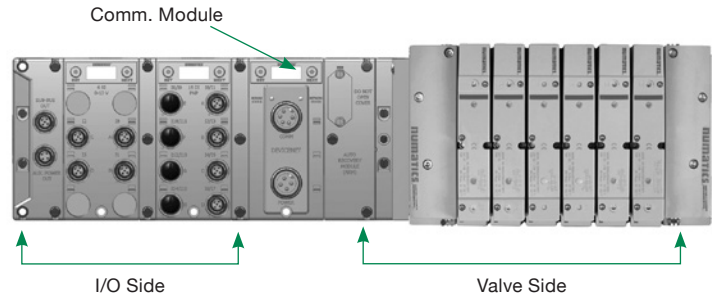
G3 Platform Distribution Options

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

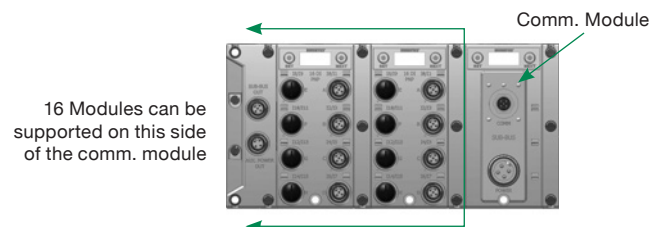
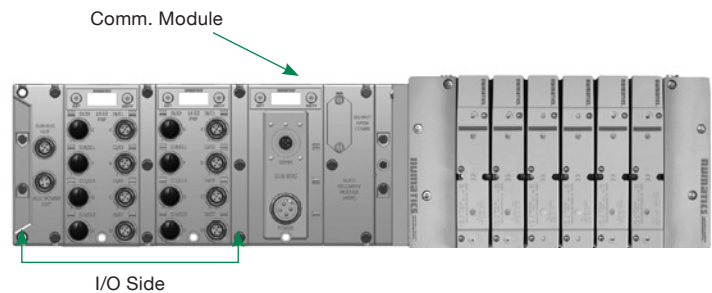
- Up to a total of 128 valve solenoids can be driven in a manifold assembly integrated into the main fieldbus manifold. This can be any number of single or double solenoid valves with a total number of solenoids not to exceed 128

Typical Main Fieldbus Manifold



I/O Side Distribution

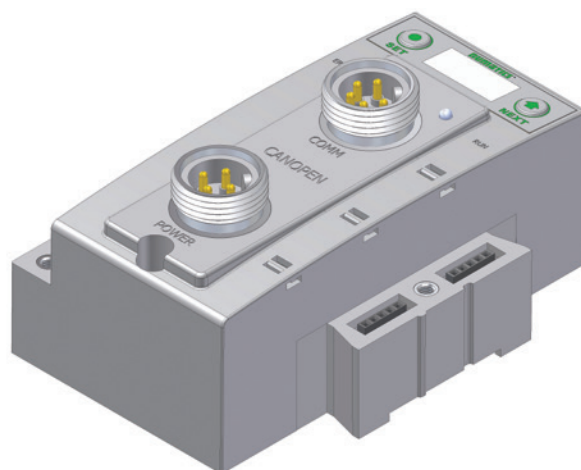
- A total of 16 modules can be integrated into the network and controlled by the main fieldbus communication module (node)
- Modules include analog and digital I/O modules providing addressing capacity for up to 1200 Inputs/1200 Outputs per node
- Unique distribution system allows system efficiency by 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



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.



Description	Replacement Part Number
CANopen® Communications Module (node)	240-291

Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	0.0404 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)	
LEDs	Module Status and Network Status	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65 (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® Communications Module	252g/8.9 oz

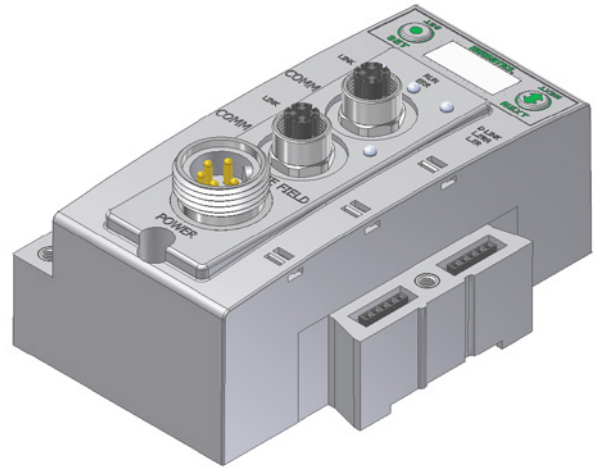
CC-Link IE Field™

CC-Link IE Field™ is an open standard 1 Gbps Ethernet Manufacturing network that enables seamless data communication from the plant-level enterprise network to the production floor network. The CC-Link Partner Association (CLPA) oversees and manages CC-Link® specifications.

Numatics' G3 nodes for CC-Link IE Field™ have an integrated graphic display and are capable of addressing combinations of up to 1200 outputs and 1200 inputs.

CC-Link IE Field™ is based on 1 Gbps Ethernet standards and complements them with specific protocols and mechanisms to achieve real time performance.

More information regarding CC-Link IE Field™ can be obtained from the following website: www.CCLinkAmerica.org



Description	Replacement Part Number
CC-Link IE Field™ Communications Module (node)	240-362

Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	0.0495 Amps
Valves & Discrete I/O	24 VDC +/- 10%	8 Amps Maximum
Power Connector	Single key 5 Pin 7/8" MINI type (male)	
Communication Connector	Two X-coded 8 Pin M12 type (female)	
LEDs	Run, ERR, Link, D Link, L.ERR, L.ER	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65 (with appropriate assembly and termination)

Configuration Data	
Graphic Display	Display used for setting Node Number, Network Number, 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	128 for 501, 80 for 502/503 and 32 for all other series
Maximum Addressable I/O Points	Various combinations of 1200 outputs and 1200 inputs

Network Data	
Supported Baud Rates	1 Gbps
Bus Connector	Two D-coded 8 Pin M12 type (2-Female)
Diagnostics	Power, short, open load conditions and module health and configuration are monitored
Special Features	Integrated 2 port switch, fail-safe device settings

Weight	
CC-Link IE Field™ Communications Module	269g/9.5 oz

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 website: 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%	0.0404 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)	
LEDs	Module Status and Network Status	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65 (with appropriate assembly and termination)

Configuration Data	
Graphic Display	Display used for setting Node Address, Baud Rate, Fault/Idle Actions, DeviceNet™ w/ 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, and QuickConnect™ capability

Weight	
DeviceNet™ Communications Module	252g/8.9 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 website: www.ethercat.org.



Description	Replacement Part Number
EtherCAT® Communications Module (node)	240-310

Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	0.073 Amps
Valves and 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)	
LEDs	Module Status, Network Status and Activity /Link	

Operating Data	
Temperature Range	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC 60068-2-6
Moisture	IP65 (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	128 for 501, 80 for 502/503 and 32 for all other series
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™

Ethernet used throughout the world to network millions of PCs 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. 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/IP™ 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 website: www.odva.org.



Description	Replacement Part Number
EtherNet/IP™ Communications Module (node)	240-181

Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	0.0657 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)	
LEDs	Module Status, Network Status and Activity/Link	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65 (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/IP™ Communications Module	255g/9 oz

EtherNet/IP™ DLR

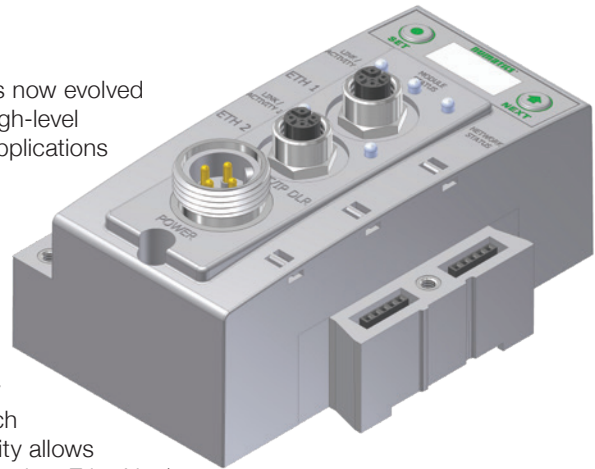
EtherNet/IP™ used throughout the world to network millions of PCs has now evolved into a viable industrial network. EtherNet/IP™ is an open architecture high-level communication network that meets the demands of today's industrial applications requiring high-speed (10/100 Mbit/s), high-throughput and 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/IP™ and the ODVA can be obtained from the following website: 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	24 VDC +/- 10%	0.0953 Amps
Valves and Discrete I/O	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)	
LEDs	Module Status, Network Status and Activity/Link	

Operating Data		
Temperature Range	-23 °C to 46 °C (-10 °F to 115 °F)	
Humidity	95% relative humidity, non-condensing	
Vibration/Shock	IEC 60068-2-27, IEC 60068-2-6	
Moisture	IP65 (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	128 for 501, 80 for 502/503 and 32 for all other series
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, QuickConnect™ capability, fail-safe device settings, integrated web server, HTTP, TFTP, UNICAST

Weight	
EtherNet/IP™ DLR Communications Module	227g/8 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 1200 outputs and 1200 inputs.

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 compatibility with B&R systems.

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

ETHERNET
POWERLINK®



Description	Replacement Part Number
POWERLINK® Communications Module (node)	240-309

Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	0.0955 Amps
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)	
LEDs	Module Status, Network Status and Activity/Link	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65 (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	128 for 501, 80 for 502/503 and 32 for all other series
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 and fail-safe device settings

Weight	
POWERLINK® Communications Module	227g/8 oz

Modbus® TCP/IP

Ethernet used throughout the world to network millions of PCs 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. 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 Modbus® TCP/IP have an integrated graphic display and are capable of addressing combinations of up to 1200 outputs and 1200 inputs.



Description	Replacement Part Number
Modbus® TCP/IP Communications Module (node)	240-292

Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	0.0657 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)	
LEDs	Module Status, Network Status and Activity/Link	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65 (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	128 for 501, 80 for 502/503 and 32 for all other series
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	
Modbus® TCP/IP Communications 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 website: 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%	0.0623 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)	
LEDs	Module Status and Network Status	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65 (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	128 for 501, 80 for 502/503 and 32 for all other series
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 Communications Module	227g/8 oz

PROFINET™

PROFINET™ is the innovative open standard for Industrial Ethernet, developed 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 website: 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%	0.0903 Amps
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)	
LEDs	Module Status, Network Status and Activity/Link	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65 (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	128 for 501, 80 for 502/503 and 32 for all other series
Maximum Addressable I/O Points	Various combinations of 1200 outputs and 1200 inputs

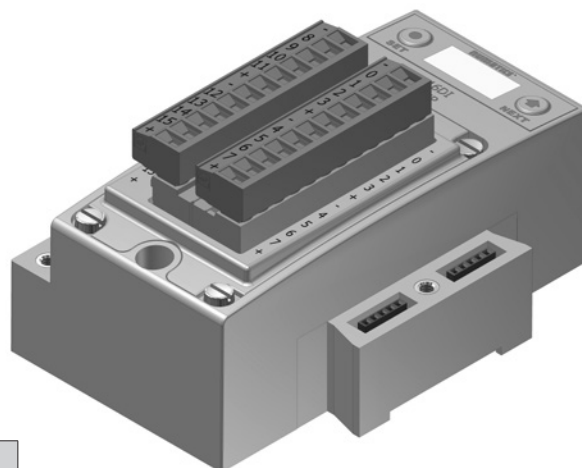
Network Data	
Supported Baud Rates	10 Mbit/100 Mbit
Bus Connector	Two D-coded 4 Pin M12 type (2-Female)
Diagnostics	Power, short, open load conditions and module health and configuration are monitored
Special Features	Integrated web server, Integrated 2 port switch, fail-safe device settings, and FSU

Weight	
PROFINET™ Communications Module	227g/8 oz

I/O Modules

Digital I/O - Terminal Strip Modules

Description	Part Number
16 PNP Inputs	240-203
16 NPN Inputs	240-204
8 PNP Inputs	240-316
16 PNP Outputs	240-330



Technical Data

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Wire Range	12 to 24 AWG
Strip Length	7mm
Tightening Torque	0.5 Nm
Ingress 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

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 PNP Inputs 19 Pin M23 (Fig. B Only)	240-323
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

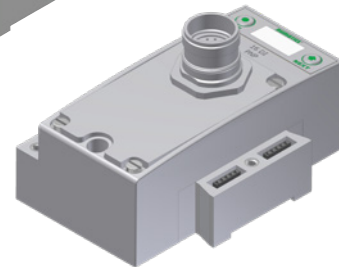


Figure B

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 (Figure A Only)	0 – 10 VDC	240-307
4 Analog Inputs & 4 Analog Outputs High Current (Figure A Only)	4 – 20 mA	240-363



Technical Data

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Ingress Protection	IP65 (with appropriate assembly and termination)
Connector-Analog & Digital	M12 4 Pin Female, SPEEDCON® (Compatible with 5 Pin)
Connector-Figure A	M12 4 Pin Male
Connector-Figure B	M23 19 Pin Female
Resolution	16 bit



Dust Cover -
M12 Male 230-647

Weight	
I/O Module-Analog	244g/8.6 oz
I/O Module-Digital	274g/9.7 oz
I/O Module-Figure A	264g/9.3 oz
I/O Module-Figure B	343g/12.1 oz

G3 RTD Temperature Module 240-311

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/°C
Resolution	15 bits plus sign
Data Format	Signed Integer
Calibration	Factory Calibrated Field Calibration w/ high tolerance ($\pm .005\%$) 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. SPEEDCON® (Compatible with 5 Pin)
Mass	247g/8.7 oz

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



G3 [Ex ia] NAMUR Input Module 240-320

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 (I) ≥ 2.1 mA Signal Current (I) ≤ 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 SPEEDCON® (Compatible with 5 Pin)
Mass	284g/10.0 oz

Operating Data	
Temperature Range Ambient	-23 °C to 46 °C (-10 °F to 115 °F)
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 w/ I/O	240-241	235g/8.3 oz
Sub-bus Valve Module w/o I/O*	P580AEDS4010A00	320g/11.3 oz
Sub-bus Valve Module w/o I/O, w/ DIN Rail Clips*	P580AEDS4010DRM	332g/11.7 oz

*500 Series only

Sub-bus Out Module

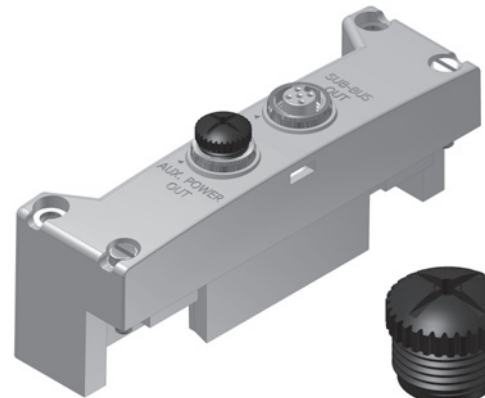
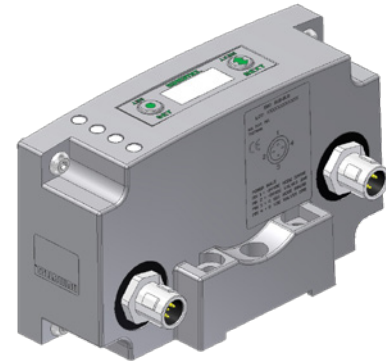
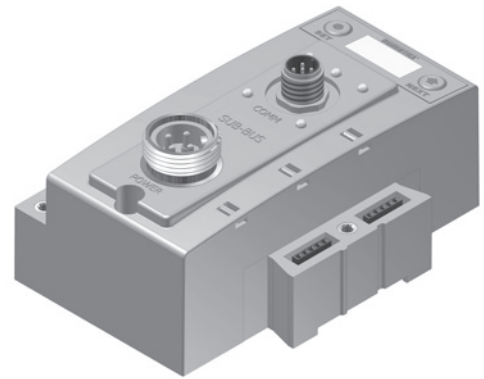
Provides Sub-bus Out and Aux. Power Out connections for I/O distribution.

Description	Part Number	Weight
Sub-bus Out Module w/ DIN Rail Clips	240-244	141g/5.0 oz
Sub-bus Out Module	240-183	130g/4.6 oz
Sub-bus Out Module for Intrinsically Safe	240-318	150g/5.3 oz

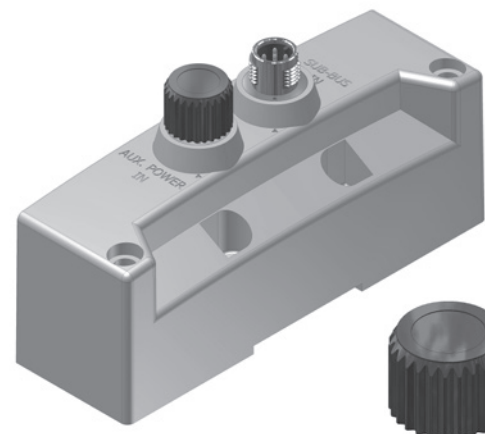
Sub-bus In Module

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

Description	Part Number	Weight
Sub-bus In Module w/ DIN Rail Clips	240-246	141g/5.0 oz
Sub-bus In Module	240-185	130g/4.6 oz
Sub-bus In Module for Intrinsically Safe	240-318	150g/5.3 oz



Dust Cover -
M12 Male 230-647



Dust Cover -
M12 Female 230-1200

G3 4 Branch Sub-bus HUB Module 240-326

The G3 HUB module allows for branch distribution from the I/O side of the G3 System and can be integrated into the existing G3 Series Sub-bus configuration. Auto Addressing allows for trouble free set up and configuration. Input, output, as well as Valve manifolds can be attached to the available four Branches on a HUB module. Each G3 System can support up to two HUB modules, allowing for maximum flexibility. The HUB module is transparent to the I/O side of the G3 and does not reserve one of the potential sixteen positions.

As with all other G3 I/O modules, standard G3 display and ARM functionality (storing of all parameters) is supported.



Technical Data

Electrical Data	
Voltage	24 VDC Module Supply
No. of HUB Branches	4 Per HUB Module, 2 HUB Modules per G3 System (A HUB module cannot be connected to the Branch of another HUB module)
HUB Branch Length	30 Meters Per Branch
Addressing	Auto Addressing on Power Up (Branch I/O reserve capability)
Display/Diagnostics	Onboard LCD Multi Function Display
G3 System Integration	Integrated into existing G3 I/O Side
Topology	Star, Tree and Hybrid

Mechanical Data	
Branch Connector	M12 5 Pin Female
Mass	255g/9.0 oz

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

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.

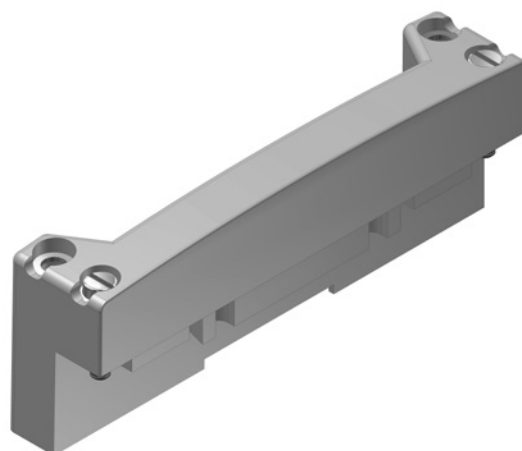
Description	Part Number	Weight
ARM Module	240-182	127g/4.5 oz



Terminator Module

Provides termination for the Sub-bus. Must be installed after the last I/O module or after the communications 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
Jumper Clip for Intrinsically Safe	240-317	65g/2.3 oz



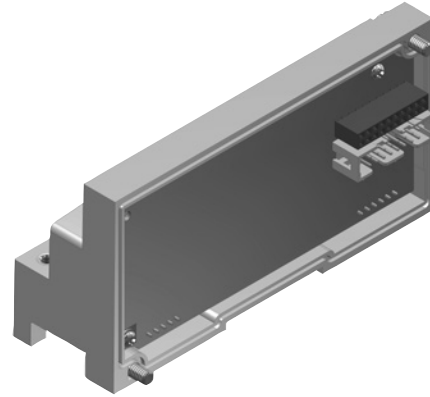
Miscellaneous Modules

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



501, 502 and 503 Series Valves

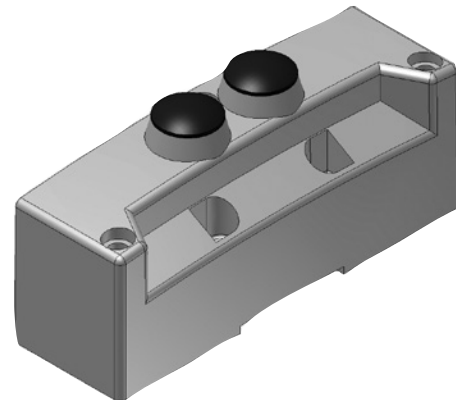
Description	Part Number	Weight
Valve Driver Module	P599AE508827001	234g/8.3 oz
Valve Driver Module w/ DIN Rail Clips	P599AE508827002	246g/8.7 oz

Right Hand Mounting Cover

Used when a communications module is used without local valves installed.

Description	Part Number	Weight
Right Hand Mounting Cover w/ DIN Rail Clips*	240-289	82g/2.9 oz
Right Hand Mounting Cover*	240-255	71g/2.5 oz
Right Hand Mounting Cover Assembly Kit for ARM	245-189	371g/13.1 oz

* Not for use in combination with ARM Module

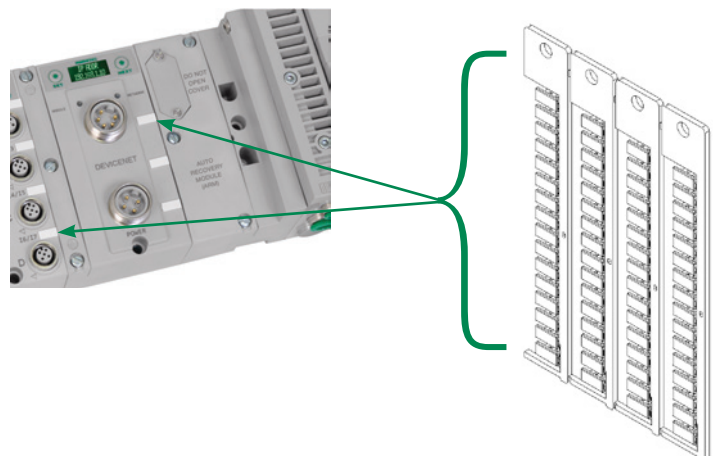


Accessories

For use with Murrplastik® Type 20 Software.

Labels - 122-1251

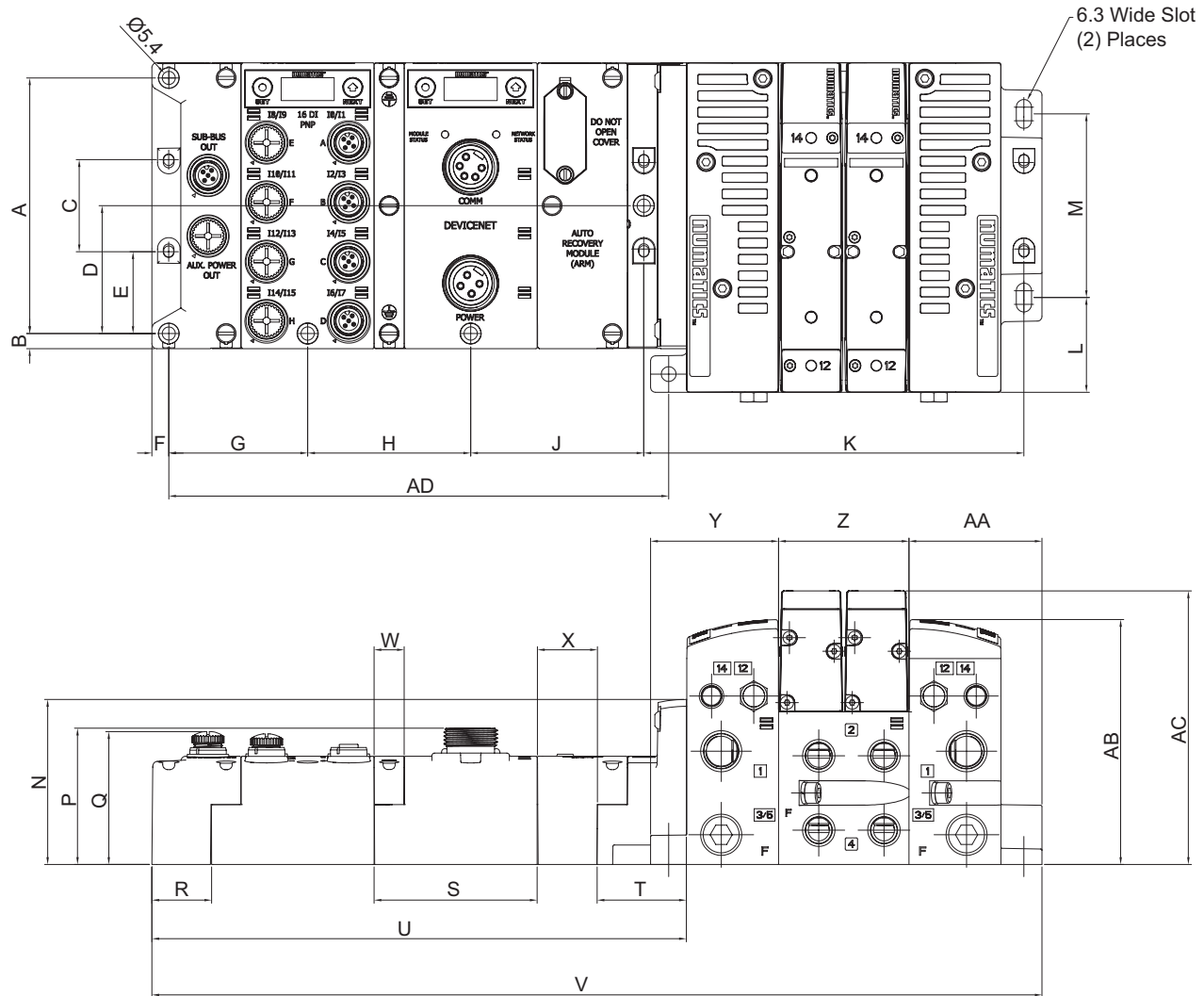
Technical Data	
Material	Polycarbonate (PC)
Color	White
Temperature Range	-40 °C to 140 °C (-40 °F to 284 °F)
Label Dimensions	0.19" x 0.39"
Label - Printable Area	0.19" x 0.39"



Dimensions: mm (inches)

G3 Fieldbus Manifold Assembly

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



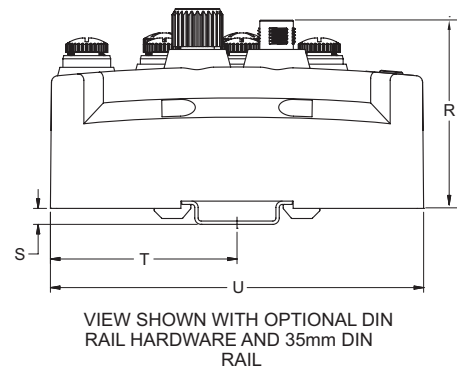
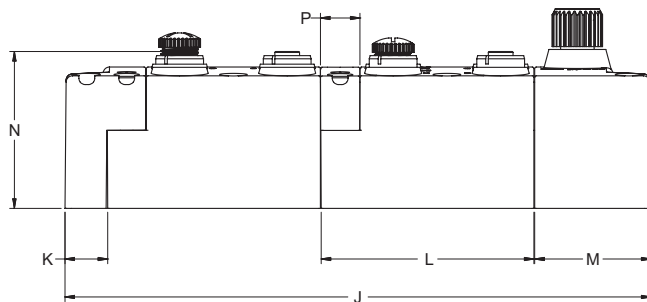
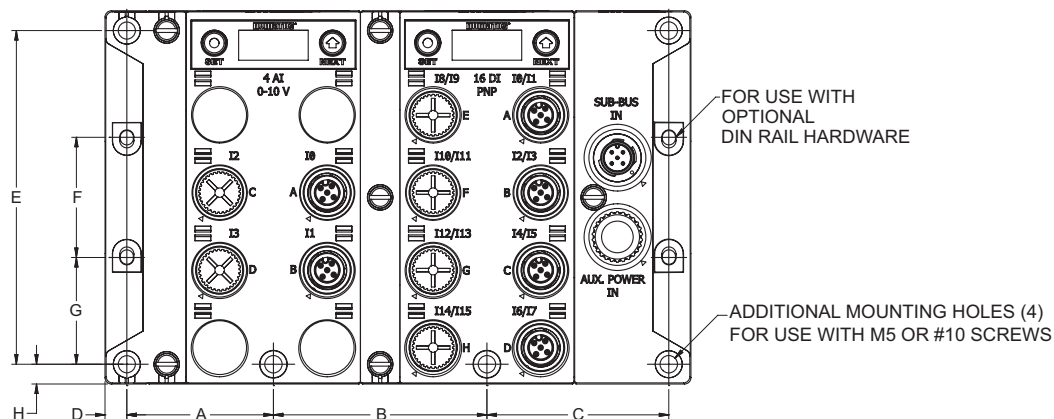
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105.5 (4.154)	6.3 (0.248)	38 (1.5)	52.8 (2.08)	33.8 (1.33)	7 (0.28)	57.5 (2.264)	67.5 (2.66)	71.7 (2.82)	-	39.1 (1.54)	75.8 (2.984)	68.1 (2.68)	56.3 (2.217)
Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
54 (2.13)	24.8 (0.98)	67.5 (2.66)	36.9 (1.45)	221.3 (8.713)	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)

NOTE: For valve manifold dimensions refer to valve series product catalogs.

Dimensions: mm (inches)

G3 Fieldbus I/O Assembly

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



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

How To Order

500 Series Manifold Assembly

K 501 A V 3 D 2 0 0 V A00

Port Type
¹ 8 = NPTF
¹ G = ISO228/1-G
 K = Push-in Fittings

Product Series
 501 = 11mm Valve
 502 = 18mm Valve
 503 = 26mm Valve

Revision
 A = Initial Release

Product Type
 V = Valve Manifold Assembly

Electronics
 3 = G3 Fieldbus Electronics
 8 = Sub-bus Valve Manifold w/o I/O

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

Second Valve Series
³ 0 = No Second Valve Series
 1 = 501
 2 = 502

Valve Station Adder
 0 = No Adder
 1 = 32+
 2 = 64+
 3 = 96+

Port Size
⁴ 1 = 1/8
 2 = 1/4
 G = 5/16
 3 = 3/8
 4 = 1/2
 H = 8mm
 K = 10mm
 M = 12mm

Number of Valve Stations
² A = NA/33/65/97 Q = 17/49/81/113
 B = 2/34/66/98 R = 18/50/82/114
 C = 3/35/67/99 S = 19/51/83/115
 D = 4/36/68/100 T = 20/52/84/116
 E = NA/37/69/101 U = 21/53/85/117
 F = 6/38/70/102 V = 22/54/86/118
 G = 7/39/71/103 W = 23/55/87/119
 H = 8/40/72/104 X = 24/56/88/120
 I = 9/41/73/105 Y = 25/57/89/121
 J = 10/42/74/106 Z = 26/58/90/122
 K = 11/43/75/107 2 = 27/59/91/123
 L = 12/44/76/108 3 = 28/60/92/124
 M = 13/45/77/109 4 = 29/61/93/125
 N = 14/46/78/110 5 = 30/62/94/126
 O = 15/47/79/111 6 = 31/63/95/127
 P = 16/48/80/112 7 = 32/64/96/128

¹ Port Type 8 & G only available in Port Size 3/8 for 502 & 503 and 1/8 for 501

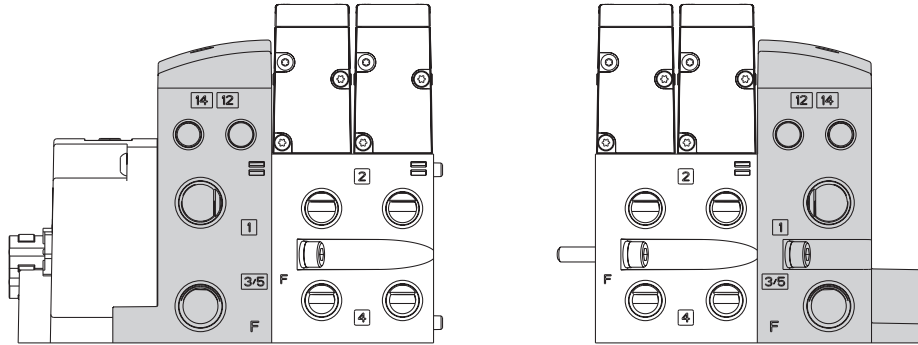
² 501 not available with 2 stations, 502 and 503 only available with an even number of stations and with up to 80 valve solenoids

³ With 502 11mm (501) valve available, with 503 18mm (502) valve available

⁴ 501 Port Sizes 1/8, 1/4, 5/16, 8mm, 502 and 530 Port Sizes 3/8, 1/2, 10 and 12mm

How to Order

Sub-bus Valve Manifold without I/O or Additional Distribution



Shaded components are described by the manifold assembly number. The communications module is described by the electronic interface model number designation.

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

NOTE:

Up to 128 solenoid outputs are available. Either 128 single solenoid valves or 64 double solenoid valves or any combination of singles and doubles not to exceed 128 outputs can be specified.

Example Order - 503 Shown

Assembly Kit	8503AV8H300VMUF
Valve Station #1	R503A2B40MA00F1
Valve Station #2	R503A2B40MA00F1
Mounting #1	8503AMM22MA0010
Valve Station #3	R503A2B40MA00F1
Valve Station #4	R503A2B40MA00F1
Mounting #2	8503AMM22MA0010
Valve Station #5	R503A2B40MA00F1
Valve Station #6	R503A2B40MA00F1
Mounting #3	8503AMM22MA0010
Valve Station #7	R503A2B40MA00F1
Valve Station #8	R503A2B40MA00F1
Mounting #4	8503AMM22MA0010
Electronics	P580AEDS4010A00
	Assembled

How To Order

2000 and ISO Series Manifold Assembly

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 18mm
X = ISO 15407-2 26mm
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 = ISP 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
8 = 8mm (5/16)
K = 10mm
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

Series
G3 = G3 Electronics

Electronics Protocol
CC1 = CC-Link IE Field
CO1 = CANopen
DL1 = DeviceLogix
DN1 = DeviceNet
EC1 = EtherCAT
ED1 = EtherNet/IP DLR
EM1 = Ethernet Modbus TCP/IP
EP1 = EtherNet/IP
PL1 = Ethernet POWERLINK
PT1 = PROFIBUS™ DP
PN1 = PROFINET™
DS2 = Sub-bus Valve Manifold
DS3 = Sub-bus I/O Assembly

Options
STD = Standard
DRM = DIN Rail Mounting
E23 = Fieldbus Assembly without Valves
E40 = Auto Recovery Module (ARM)
G32 = E40 + DRM
G36 = E28 + E40

Modification
0 = Initial Release

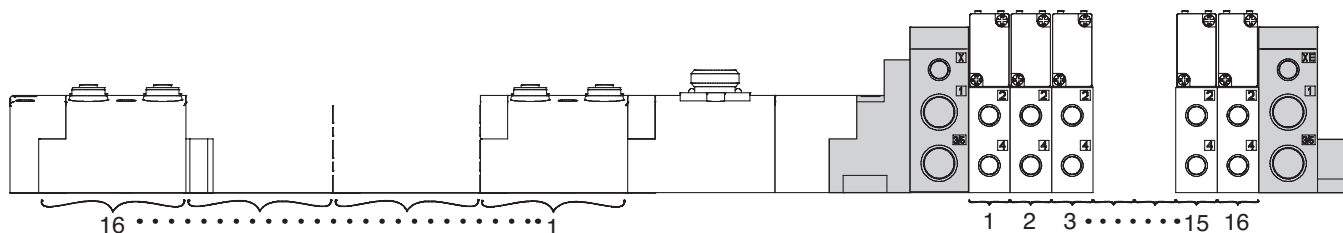
Left Mounting
D = w/ Sub-bus Out
R = w/ Terminating Resistor

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

How to Order

Valve Manifold Assemblies w/ 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 previous page). The communications module and number of I/O modules are described by the electronic interface (G3) model number designation (see previous page).

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:

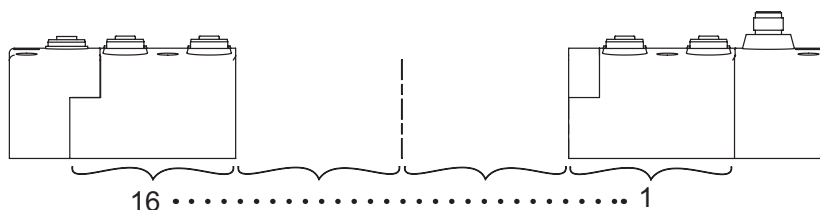
1. A total of 32 solenoid outputs are available. Either 32 single solenoid valves or 16 double solenoid valves or any combination of singles and doubles not to exceed 32 outputs can be specified.
2. For manifold assemblies that exceed 16 solenoids, the assembly **MUST** be configured so that an even 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

Assembly 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 the previous page 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 w/ Sub-bus In and Sub-bus Out Modules Shown

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/IP™, EtherNet/IP™ DLR, Modbus® TCP/IP, 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™, POWERLINK®, EtherCAT®, and CC-Link IE Field™

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/IP™, EtherNet/IP™ DLR, Modbus® TCP/IP, 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™, POWERLINK®, EtherCAT®, and CC-Link IE Field™

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

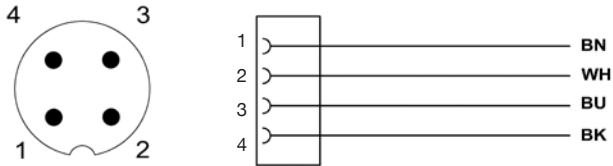
TD04F10000000000 – PG 7 Cable Gland

TD04F20000000000 – PG 9 Cable Gland

Pin Out and Technical Data

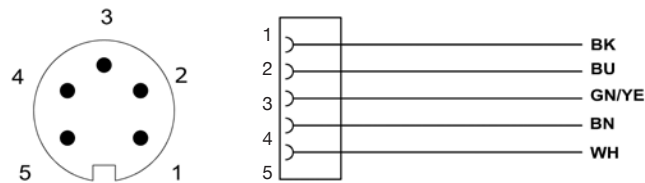
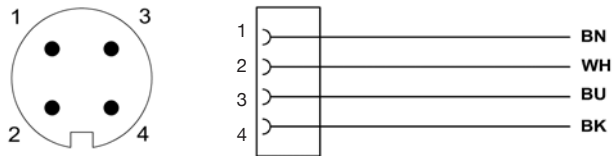
M12 Cable - Pin Out/Euro Color Code

(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/Die Cast Zinc
Cable Jacket Material	PVC	PVC
Cable O.D.	7.4mm	7.4mm (4 Pin & 5 Pin)
Voltage Rating (Nominal)	250 V Max. @ 105 °C (221 °F)	250 V Max. @ 105 °C (221 °F)
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 to 85 °C (-13 °F to 185 °F)	-40 °C to 85 °C (-40 °F to 185 °F)
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 – 6mm	N/A
PG 9 Range	6 – 8mm	5 – 13mm -One size fits all
PG 13.5 Range	N/A	5 – 13mm - 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

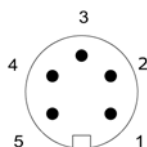
7/8" MINI Straight 5 Pin Field Wireable Connectors

MC05F90000000000 - Female - Cable Gland - One size fits all

MA05F90000000000 - Male - Cable Gland - One size fits all

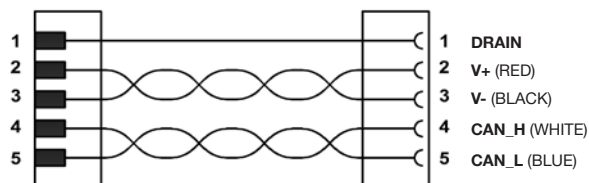
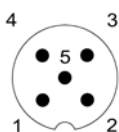
MINI Cable - Pin Out/Color Code

(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 to 80 °C (-40 °F to 176 °F)	-40 °C to 105 °C (-40 °F to 221 °F)	-40 °C to 90 °C (-40 °F to 194 °F)
Conductor Gauge	22 AWG Power 24 AWG Signal	N/A	16 – 22 AWG
Bend Radius Minimum	Cable = 72mm	N/A	N/A
Wire Connection	NA	N/A	Screw Terminal



M12 X-Coded Cables

M12 Straight 8 Pin Male Single Ended Cable - Shielded

XA0905MR0000071P – 5 Meter

XA0910MR0000071P – 10 Meter

M12 Straight 8 Pin Male Double Ended Cable - Shielded

XA0905MR0EA0971P – 5 Meter

XA0910MR0EA0971P – 10 Meter

M12 Straight 8 Pin Male to Male RJ45 Cable - Shielded

XA0905MR0VA0971P – 5 Meter

XA0910MR0VA0971P – 10 Meter

M12 X-Coded Field Wireable Connector

M12 Straight 8 Pin Male Field Wireable Connector w/ IDC

XA09F2000000081E – PG 9 Cable Gland

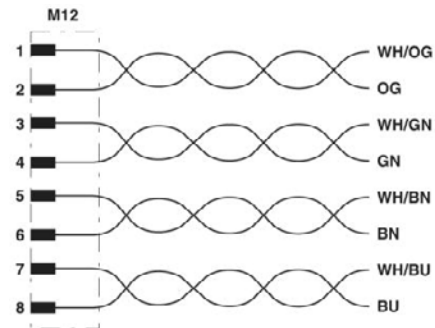
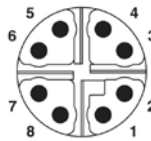
RJ45 Field Wireable Connector

RJ45 Field Wireable Connector w/ IDC

VA09F2000000071N – PG 9 Cable Gland

**M12 X-Coded Cable -
Pin Out/Color Code**

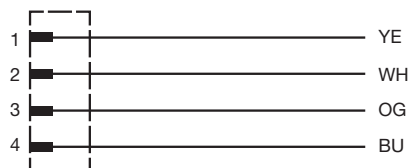
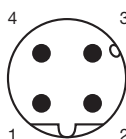
(Male View)



Technical Data	Cable	M12 Field Wireable	RJ45 Field Wireable
Molded Body/Insert	TPU/PE	Nickel Plated Zinc/PP	Housing = PA Carrier = PC
Coupling Nut	Nickel Plated Zinc	Nickel Plated Zinc	NA
Cable Jacket Material	PUR	NA	NA
Cable O.D.	6.4mm	Accepts 4.0 to 8.0mm	Accepts 4.5 to 8.0mm
Voltage Rating (Nominal)	48 Volts	48 Volts	50 Volts
Current Rating	0.5 Amps	0.5 Amps	1.75 Amps
Degree of Protection	IP65 (mated)	IP65 (mated)	IP 65 (mated)
Operating Temperature	-20 °C to 80 °C (-4 °F to 176 °F)	-40 °C to 85 °C (-40 °F to 185 °F)	-40 °C to 70 °C (-40 °F to 158 °F)
Conductor Gauge	26 AWG	26 AWG	26 – 24 AWG
Bend Radius	51.2mm	NA	NA
Wire Connection	NA	IDC	IDC


**M12 D-Coded Cable -
Pin Out/Color Code**

(Male View)


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

QA0405MT00000000 – 5 Meter

QA0410MT00000000 – 10 Meter

M12 Straight 4 Pin Male D-Coded Double Ended Cable

QA0405MT0QA04000 – 5 Meter

QA0410MT0QA04000 – 10 Meter

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

QA0405MT0VA04000 – 5 Meter

QA0410MT0VA04000 – 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 w/ IDC

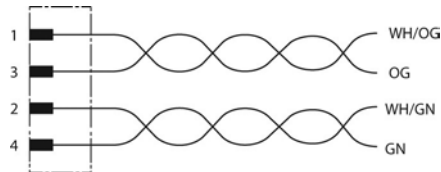
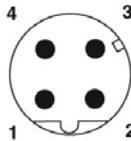
VA08F200R000071N – PG 9 Cable Gland (1658435)

Technical Data	Cable	RJ45 Field Wireable	M12 Field Attachable
Molded Body/Insert	TPU/PE	Housing = PA Carrier = PC	Nickel Plated Zinc/PA 66
Coupling Nut	Nickel Plated Zinc	NA	Nickel Plated Brass
Cable Jacket Material	PVC	NA	NA
Cable O.D.	6.5mm	Accepts 4.5 to 8.0mm	Accepts 4.0 to 8mm
Voltage Rating (Nominal)	250 Volts	NA	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	-40 °C to 70 °C (-40 °F to 158 °F)	-10 °C to 60 °C (14 °F to 140 °F)	-40 °C to 85 °C (-40 °F to 185 °F)
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)	NA	NA
Wire Connection	NA	IDC	Screw Terminal, IDC



**M12 D-Coded Cable -
Pin Out/Color Code**

(Male View)



M12 D-Coded Cables

M12 Straight 4 Pin Male D-Coded Single Ended Cable

QA0405MK00000000 – 5 Meter

QA0410MK00000000 – 10 Meter

M12 Straight 4 Pin Male D-Coded Double Ended Cable

QA0405MK0QA04000 – 5 Meter

QA0410MK0QA04000 – 10 Meter

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

QA0405MK0VA04000 – 5 Meter

QA0410MK0VA04000 – 10 Meter

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

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 – Screw Terminal

RJ45 Field Wireable Connector

RJ45 Field Wireable Connector w/ IDC

VA08F2000000071N – PG 9 Cable Gland

Technical Data	Cable	RJ45 Field Wireable	M12 Field Attachable
Molded Body/Insert	TPU, PA, PA66	Housing = PA Carrier = PC	Body = Nickel Plated Zinc Insert = PA 66
Coupling Nut	Nickel Plated Zinc or Brass	NA	Nickel Plated Brass
Cable Jacket Material	PUR or PVC	NA	NA
Cable O.D.	0.67 to 8.0mm	4.5 to 8.0mm	6.0 to 8.0mm
Voltage Rating (Nominal)	42 Volts	NA	60 Volts
Current Rating	1.5 Amps	1.75 Amps	Screw 4.0 Amps IDC 1.75 Amps
Degree of Protection	IP65 (mated)	IP20	IP 65 (mated)
Operating Temperature	-20 °C to 60 °C (-4 °F to 140 °F)	-20 °C to 70 °C (-4 °F to 158 °F)	-40 °C to 85 °C (-40 °F to 185 °F)
Conductor Gauge	26 & 24 AWG	26 – 22 AWG Solid/Stranded	Screw 24 – 18 AWG IDC 26 – 22 AWG
Bend Radius	40mm	NA	NA
Wire Connection	NA	IDC	IDC, Screw Terminal



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

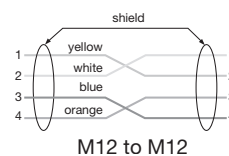
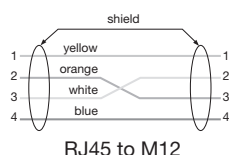
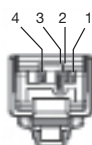
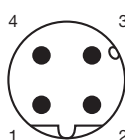
RJ45 Field Attachable Connectors

RJ45 Field Wireable Connector w/ 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.	6.5mm	Accepts 4.5 to 8.0mm	Accepts 6.0 to 8mm
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 to 60 °C (-13 °F to 140 °F)	-10 °C to 60 °C (14 °F to 140 °F)	-40 °C to 85 °C (-40 °F to 185 °F)
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 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

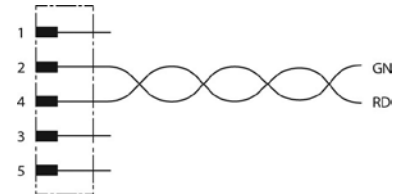
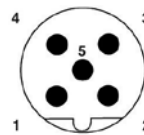
M12 Reverse Key B-Coded Terminating Resistor

M12 Straight 5 Pin Male Reverse Key Terminating Resistor

RA05TR0000000000 – Male

M12 Reverse Key B-Coded Cable - Pin Out/Color Code

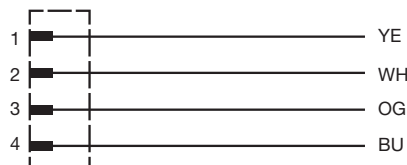
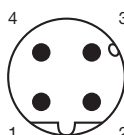
(Male View)



Technical Data	Cable	RJ45 Field Attachable	M12 Field Attachable
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 to 80 °C (-4 °F to 176 °F)	-10 °C to 60 °C (14 °F to 140 °F)	-40 °C to 85 °C (-40 °F to 185 °F)
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


**M12 D-Coded Cable -
Pin Out/Color Code**

(Male View)


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 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 Connectors
RJ45 Field Wireable Connector w/ IDC

VA08F200R000071N – PG 9 Cable Gland

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 7.4mm	Accepts 4.5 to 8.0mm	Accepts 6.0 to 8mm
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 to 60 °C (-13 °F to 140 °F)	-10 °C to 60 °C (14 °F to 140 °F)	-40 °C to 85 °C (-40 °F to 185 °F)
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	N/A	IDC	Screw Terminal, IDC

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

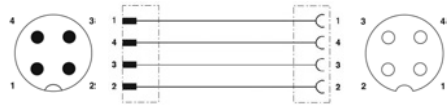
(Male View)



M12 Cable - Pin Out/Color Code

TC03XXMIEPA0371P

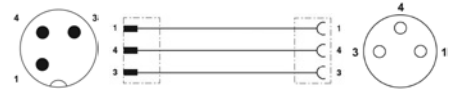
(Male to Female View)



M12 Cable - Pin Out/Color Code

TC03XXMIEPA0371P

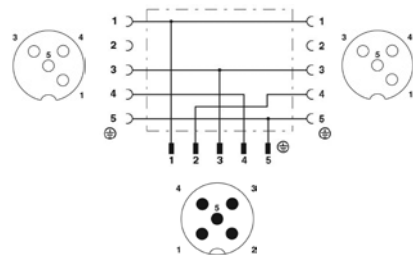
(Male to Female View)



M12 to M12 "Y" Splitter - Pin Out

TA0500000JC05000

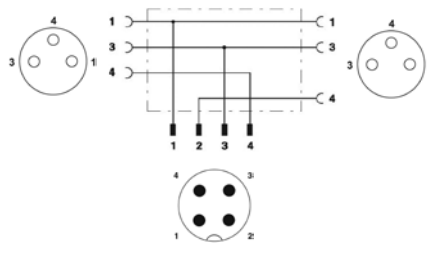
(Male to Female View)



M12 to M8 "Y" Splitter - Pin Out

TA0400000KC03000

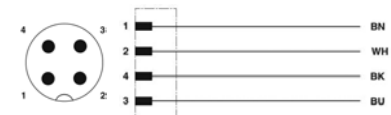
(Male to Female View)



M12 Field Wireable (IDC) - Pin Out

TA04F2000000081E (SPEEDCON®)

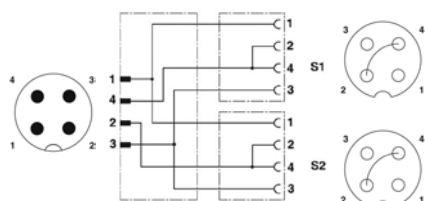
(Male View)



M12 to M12 Cable Splitter - Pin Out

TA04XXMIEJC04000

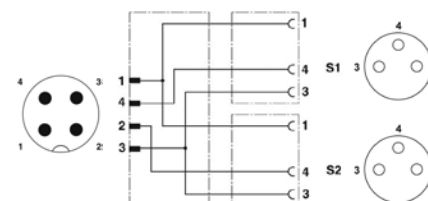
(Male to Female View)



M12 to M8 Cable Splitter - Pin Out

TA04XXMIEKC03000

(Male to Female View)



NOTE:

XX denotes allowable length.
See pages 48 & 49.

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.	4.70mm	4.70mm	PG7 4.0 to 6.0mm PG9 4.0 to 8.0mm
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 (-13 °F to 176 °F) (fixed instl.)	-25 °C to 80 °C (-13 °F to 176 °F) (fixed instl.)	-25 °C to 80 °C (-13 °F to 176 °F)
Conductor Gauge	22 AWG	22 AWG	22 AWG Min. 18 AWG Max.
Bend Radius	47mm	47mm	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	4.40mm
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 (-13 °F to 194 °F)	-25 °C to 80 °C (-13 °F to 176 °F)
Conductor Gauge	NA	22 AWG or 24 AWG
Bend Radius	NA	44mm

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



M23 19 Pin Cables

M23 19 Pin Female Single Ended Cable

CC1905MI00000000 – 5 Meter

CC1910MI00000000 – 10 Meter

M23 19 Pin Male Single Ended Cable

CE1905MI00000000 – 5 Meter

CE1910MI00000000 – 10 Meter

M23 19 Pin Female to Male Double Ended Cable

CC1902MIOCE19000 – 2 Meter

CC1905MIOCE19000 – 5 Meter

CC1910MIOCE19000 – 10 Meter

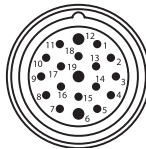
M23 19 Pin Connectors

M23 19 Pin Female Field Wireable Connector, Solder Cup

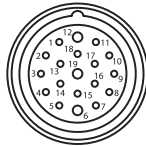
CC19000000000000 – PG 13.5 Cable Gland

M23 19 Pin Cable - Pin Out/Color Code

(Male View)



(Female View)



Conductor	Cable	Conductor	Cable
Pin 1	White	Pin 11	Gray/Pink
Pin 2	Brown	Pin 12	Green/Yellow
Pin 3	Green	Pin 13	White/Green
Pin 4	Yellow	Pin 14	Brown/Green
Pin 5	Gray	Pin 15	White/Yellow
Pin 6	Pink	Pin 16	Yellow/Brown
Pin 7	Blue	Pin 17	White/Gray
Pin 8	Red	Pin 18	Gray/Brown
Pin 9	Black	Pin 19	Red/Blue
Pin 10	Purple		

Technical Data	Cable	Connector
Molded Body/Insert	PA66	PBT
Coupling Nut	Gadolinium-Zinc Plated Brass	Gadolinium-Zinc Plated Brass/ Nickel Plated Brass
Cable Jacket Material	PUR/PVC	N/A
Cable O.D.	10.5mm	Accepts 10.0 to 12.0mm
Voltage Rating (Nominal)	150 Volts	150 Volts
Current Rating	8.0 Amps	8.0 Amps
Degree of Protection	IP65 (mated)	IP65 (mated)
Operating Temperature	-40 °C to 80 °C (-40 °F to 176 °F)	-20 °C to 80 °C (-4 °F to 176 °F)
Conductor Gauge	18 & 20 AWG	18 AWG
Bend Radius Minimum	78.75mm	N/A
Wire Connection	N/A	Solder Cup

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*

000550MGD0005000 – 50 Meter Length

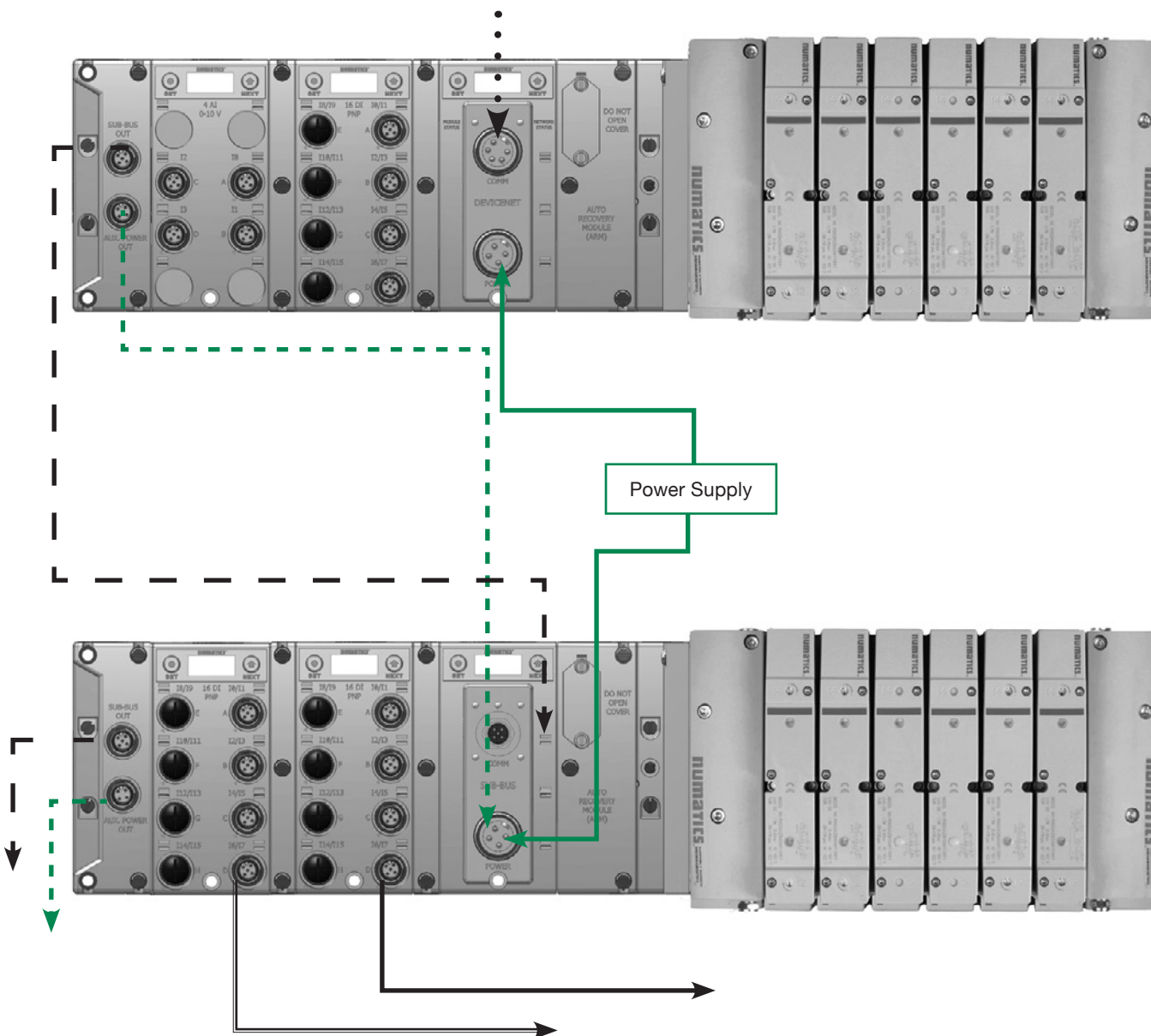
0005A0MGD0005000 – 100 Meter Length

* 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.	6.70mm	N/A	6.70mm
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 to 80 °C (-40 °F to 176 °F)	-40 °C to 80 °C (-40 °F to 176 °F)	-20 °C to 75 °C (-4 °F to 167 °F)
Conductor Gauge	24 AWG Signal 22 AWG Power	26 – 20 AWG	24 AWG Signal 22 AWG Power
Bend Radius	67mm	N/A	67mm
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	44
	Alternate Sub-bus Power Option	TA0401MA0MC0471T	45
	DeviceNet™/CANopen® Communication Cable	MC0505MGD0000000	47
	I/O Field Wireable Connector	TA04F2000000081E	54
	I/O Connector with Molded Cable	TA0405MIE000071P	54
	Sub-bus Cable	TA0501MGDTC0571P	58



Fieldbus Electronics

580 Series | Communication Node



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PROFIBUS™ DP	69
PROFINET™	70
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580 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 brightness
- Set factory defaults

Visual Diagnostics

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

580 Fieldbus Communications Electronics

Why use Numatics Fieldbus communications electronics?

Modular Reality...

- No internal wiring simplifies assembly
- Power connector allows output power to be removed while inputs and communications are left active
- IP65 protection
- Up to 128 valve solenoids per manifold
- Direct Connection to Emerson DeltaV™ with Electronic Marshalling platform via the 580 CHARM Node
- 500 Series valve compatibility

Supported Protocols

- CANopen®
- DeviceNet™
- EtherCAT®
- EtherNet/IP™
- EtherNet/IP™ DLR
- Ethernet POWERLINK®
- IO-Link®*
- PROFIBUS™ DP
- PROFINET™

* IO-Link® is a communication network that requires an IO-Link® Master with a higher level fieldbus or Ethernet communication protocol.



Graphic Display for configuration & diagnostics



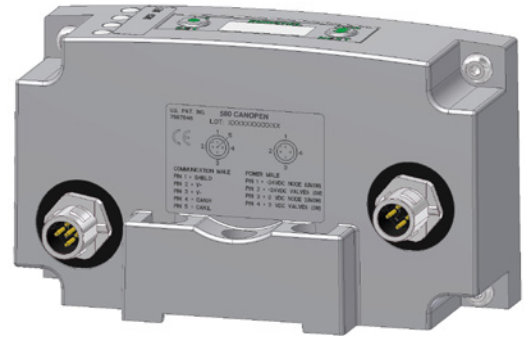
EtherNet/IP and DeviceNet are trademarks of ODVA.
Ethernet POWERLINK is a registered trademark of Bernecker + Rainer Industrie – Elektronik Ges.m.b.H.
CANopen is a registered Community trademark of CAN in Automation e.V.
PROFIBUS and PROFINET are trademarks and IO-Link is a registered trademark of Profibus Nutzerorganisation e.V.
EtherCAT is a registered trademark of Beckhoff Automation GmbH.

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' 580 nodes for CANopen® have an integrated graphic display.

More information about CANopen® and the CIA can be found at: www.can-cia.org.



Description	Replacement Part Number
CANopen® communications module (node)	P580AECO1010A00

Technical Data

Electrical Data	Voltage	Current
Node Power	24 VDC +/- 10%	0.007 Amps
Bus Power	11 – 25 VDC	0.05 Amps
Valves	24 VDC +/- 10%	4 Amps Maximum
Power Connector	A-Coded 4 Pin M12 (Male)	
Communication Connector	A-Coded 5 Pin M12 (Male)	
LEDs	Module Status and Network Status	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65

Configuration Data	
Graphic Display	Display used for setting Node Address, Baud Rate, Fault/Idle Actions, and all other system settings
Maximum Valve Solenoid Outputs	32

Network Data	
Supported Baud Rates	125K Baud, 250K Baud, 500K Baud, 1M Baud
Bus Connector	Single key 5 Pin M12 (male)
Diagnostics	Power, short, open load conditions are monitored
Special Features	Fail-safe device settings

Weight	
CANopen® Communications Module	320g/11.3 oz

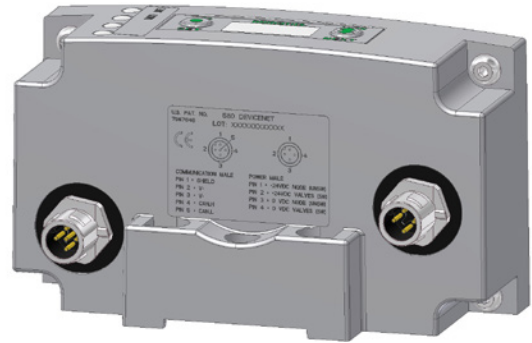
DeviceNet™

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' 580 nodes for DeviceNet™ have an integrated graphic display.

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

More information about DeviceNet™ and the ODVA can be obtained from the following website: www.odva.org



Description	Replacement Part Number
DeviceNet™ Communications Module (node)	P580AEDN1010A00

Technical Data

Electrical Data	Voltage	Current
Node Power	24 VDC +/- 10%	0.05 Amps
Bus Power	11 – 25 VDC	0.05 Amps
Valves	24 VDC +/- 10%	4 Amps Maximum
Power Connector	A-Coded 4 Pin M12 (Male)	
Communication Connector	A-Coded 5 Pin M12 (Male)	
LEDs	Module Status and Network Status	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65

Configuration Data	
Graphic Display	Display used for setting Node Address, Baud Rate, Fault/Idle Actions, and all other system settings
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 M12 (male)
Diagnostics	Power, short, open load conditions are monitored
Special Features	Supports Auto-Device Replacement (ADR) and fail-safe device settings

Weight	
DeviceNet™ Communications Module	320g/11.3 oz

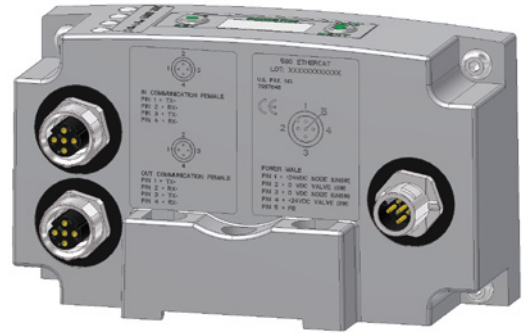
EtherCAT®

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' 580 EtherCAT® node has an integrated graphic display for simplified commissioning and diagnostics.

The 580 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 website: www.ethercat.org



Description	Replacement Part Number
EtherCAT® Communications Module (node)	P580AEEC1010A00

Technical Data

Electrical Data	Voltage	Current
Node Power	24 VDC +/- 10%	0.11 Amps
Valves	24 VDC +/- 10%	4 Amps Maximum
Power Connector	Single key 5 Pin M12 (male)	
Communication Connector	Two D-Coded 4 Pin M12 (female)	
LEDs	Error/Run	

Operating Data	
Temperature Range	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC 60068-2-6
Moisture	IP65

Configuration Data	
Graphic Display	Display used for Subnet Mask, Fault/Idle Actions, and all other system settings
Maximum Valve Solenoid Outputs	128 for 501 and 80 for 502/503

Network Data	
Supported Baud Rates	10 Mbit/100 Mbit
Bus Connector	Two D-Coded 4 Pin M12 (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	332g/11.7 oz

EtherNet/IP™

Ethernet used throughout the world to network millions of PCs 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. 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' 580 nodes for Ethernet have an integrated graphic display.

The 580 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 website:
Open Device Vendors Association (ODVA) www.odva.org



Description	Replacement Part Number
Ethernet/IP™ Communications Module (node)	P580AEEP1010A00

Technical Data

Electrical Data	Voltage	Current
Node Power	24 VDC +/- 10%	0.05 Amps
Valves	24 VDC +/- 10%	4 Amps Maximum
Power Connector	A-Coded 4 Pin M12 (male)	
Communication Connector	D-Coded 4 Pin M12 (female)	
LEDs	Module Status, Network Status and Activity/Link	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65

Configuration Data	
Graphic Display	Display used for setting IP Address, Subnet mask, Fault/Idle Actions, DHCP/BootP and all other system settings
Maximum Valve-Solenoid Outputs	32

Network Data	
Supported Baud Rates	10 Mbit/100 Mbit
Bus Connector	D-Coded 4 Pin M12 (female)
Diagnostics	Power, short, open load conditions
Special Features	Integrated web server, fail-safe device settings, HTTP, FTP, and UNICAST (for EtherNet/IP)

Weight	
Ethernet/IP™ Communications Module	320g/11.3 oz

EtherNet/IP™ DLR

EtherNet/IP™ used throughout the world to network millions of PCs 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' 580 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).

The 580 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 website: www.odva.org



Description	Replacement Part Number
EtherNet/IP™ DLR Communications Module (node)	P580AEED1010A00

Technical Data

Electrical Data	Voltage	Current
Node Power	24 VDC +/- 10%	0.09 Amps
Valves	24 VDC +/- 10%	4 Amps Maximum
Power Connector	A-Coded 4 Pin M12 (male)	
Communication Connector	Two D-Coded 4 Pin M12 (female)	
LEDs	Module Status, Network Status and Activity/Link	

Operating Data	
Temperature Range	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC 60068-2-6
Moisture	IP65

Configuration Data	
Graphic Display	Display used for setting IP address, Subnet Mask, Fault/Idle Actions, and all other system settings
Maximum Valve Solenoid Outputs	128 for 501 and 80 for 502/503

Network Data	
Supported Baud Rates	10 Mbit/100 Mbit
Bus Connector	Two D-Coded 4 Pin M12 (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, fail-safe device settings, integrated web server, HTTP, TFTP, UNICAST

Weight	
EtherNet/IP™ DLR Communications Module	337g/11.9 oz

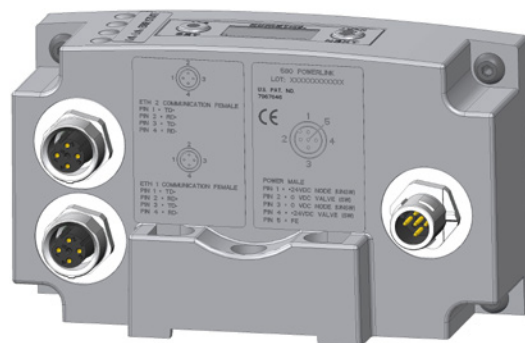
Ethernet POWERLINK®

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

Numatics' 580 nodes for Ethernet POWERLINK® have an integrated graphic display.

The 580 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 compatibility with B&R systems.

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



Description	Replacement Part Number
POWERLINK® Communications Module (node)	P580AEPL1010A00

Technical Data

Electrical Data	Voltage	Current
Node Power	24 VDC +/- 10%	0.09 Amps
Valves	24 VDC +/- 10%	4 Amps Maximum
Power Connector	Single Key 5 Pin M12 (male)	
Communication Connector	Two D-Coded 4 Pin M12 (female)	
LEDs	Error, Status and Activity/Link	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture	IP65

Configuration Data	
Graphic Display	Display used for setting IP address, Subnet Mask, Fault/Idle Actions, and all other system settings
Maximum Valve Solenoid Outputs	128 for 501 and 80 for 502/503

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

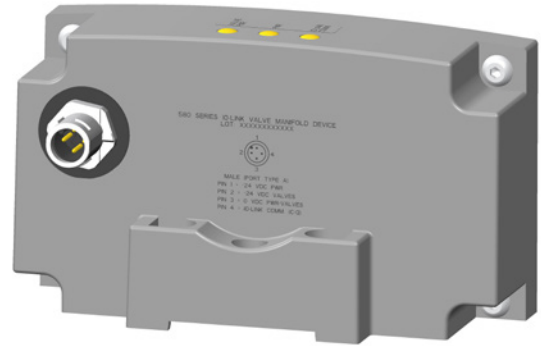
Weight	
POWERLINK® Communications Module	328g/11.6 oz

IO-Link® (Class A & Class B)

IO-Link® is a globally standardized IO technology (IEC 61131-9) developed primarily for communication with smart sensors and actuators that can also be used with valves and other field devices. IO-Link® is used to individually link field devices and resides below the I/O level. An IO-Link® Master with a higher level fieldbus or Ethernet communication protocol is required. The IO-Link Consortium, which is a technical committee within PROFIBUS™ & PROFINET™ International (PI), oversees and manages IO-Link® specifications.

Numatics' IO-Link® communications node offers both event based as well as standard I/O mapped diagnostics, requires minimal commissioning, and is compatible with distributed modular I/O. Supports both Class A (4 Pin) and Class B (5 Pin with isolated ground) communication port types.

More information regarding IO-Link® can be obtained from the following website: www.io-link.com



Description	Replacement Part Number
IO-Link® Class A (4 Pin) Communications Module (node)	P580AELM1010A00
IO-Link® Class B (5 Pin) Communications Module (node)	P580AELM2010A00

Technical Data

Electrical Data	Voltage	Current
Node Power	24 VDC +/- 10%	0.020 Amps
Valves	24 VDC +/- 10%	4 Amps Maximum
Power and Communication Connector	Class A: A-Coded 4 Pin M12 (male)/Class B: A-Coded 5 Pin M12 with isolated ground (male)	
LEDs	Valve Power, Node Power and Communication	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% Relative Humidity, Non-condensing
Vibration/Shock	IEC 60068-2-27, IEC 60068-2-6
Moisture	IP65

Configuration Data	
Maximum Valve Solenoid Outputs	32

Network Data	
Supported Baud Rates	38.4K
Diagnostics	Power, short, open load conditions with both standard I/O mapped diagnostics and event based diagnostics
Special Features	Fail-safe device settings

Weight	
IO-Link® Communications Module	Class A: 298g/10.5oz, Class B: 303g/10.7oz

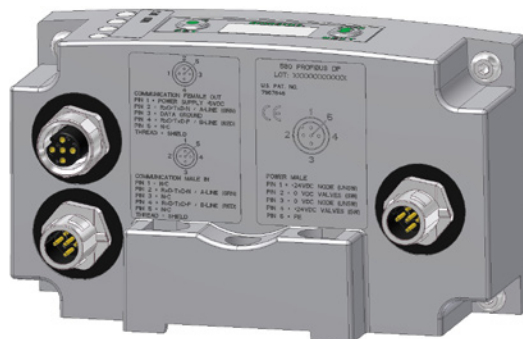
PROFIBUS™ DP

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' 580 nodes for PROFIBUS™ DP have an integrated graphic display.

The 580 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 website: www.profibus.com



Description	Replacement Part Number
PROFIBUS™ DP Communications Module (node)	P580AEPT1010A00

Technical Data

Electrical Data	Voltage	Current
Node Power	24 VDC +/- 10%	0.08 Amps
Valves	24 VDC +/- 10%	4 Amps Maximum
Power Connector	A-Coded 5 Pin M12 (male)	
Communication Connector	Single reverse key (B-Coded) 5 Pin M12 (1 male and 1 female)	
LEDs	Module Status and Network Status	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65

Configuration Data	
Graphic Display	Display used for setting Node Address, Fault/Idle Actions, and all other system settings
Maximum Valve-Solenoid Outputs	128 for 501 and 80 for 502/503

Network Data	
Supported Baud Rates	Auto-Baud (From 9.6k to 12m Baud)
Bus Connector	Single reverse key (B-Coded) 5 Pin M12 (1 male and 1 female)
Diagnostics	Power, short, open load conditions and module health are monitored

Weight	
PROFIBUS™ DP Communications Module	326g/11.5 oz

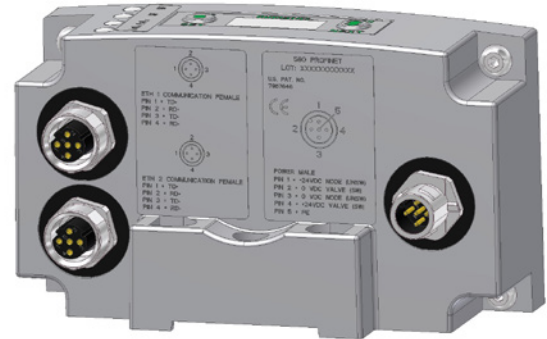
PROFINET™

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' 580 nodes for PROFINET™ IO (PROFINET™ RT) have an integrated graphic display.

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 website: www.profibus.com



Description	Replacement Part Number
PROFINET™ Communications Module (node)	P580AEPN1010A00

Technical Data

Electrical Data	Voltage	Current
Node Power	24 VDC +/- 10%	0.11 Amps
Valves	24 VDC +/- 10%	4 Amps Maximum
Power Connector	A-Coded 5 Pin M12 (male)	
Communication Connector	Two D-Coded 4 Pin M12 (female)	
LEDs	System Fault, Bus Fault and Activity Link	

Operating Data	
Temperature Range (ambient)	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% relative humidity, non-condensing
Vibration/Shock	IEC 60068-2-27, IEC60068-2-6
Moisture Protection	IP65

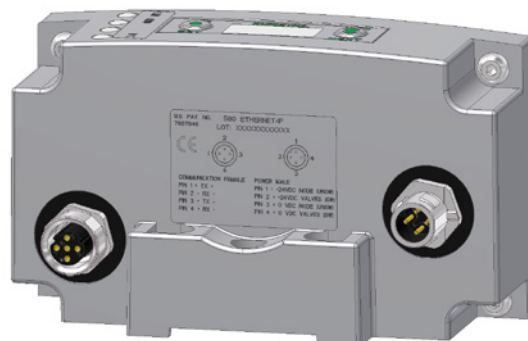
Configuration Data	
Graphic Display	Display used for setting IP Address, Subnet Mask, Fault/Idle Actions, and all other system settings
Maximum Valve-Solenoid Outputs	128 for 501 and 80 for 502/503

Network Data	
Supported Baud Rates	10 Mbit/100 Mbit
Bus Connector	Two D-Coded 4 Pin M12 (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

Weight	
PROFINET™ Communications Module	335g/11.8 oz

580 CHARM Node

The 580 CHARM node provides direct connectivity of pneumatic manifolds to DeltaV with Electronic Marshalling. The node connects directly to the CHARM I/O baseplate via 2 cables which attach to CHARM column extender. The cables provide redundant communication and power to the pneumatic manifold and allow the 580 CHARM node to be directly controlled by DeltaV Explorer. The 580 CHARM node configures the same as a DO CHARM.



Description	Replacement Part Number
580 CHARM Module (node)	P580AECH1010A00

Technical Data

Electrical Data	Voltage	Current
Bus Power	6.3 V	100 mA
Valve Power	24 V	1.07 Amps
Power and Bus Connector	A-Coded 5 Pin M12 Male	
LEDs	Module Status and Network Status	

Operating Data	
Temperature Range	-23 °C to 46 °C (-10 °F to 115 °F)
Humidity	95% Relative Humidity, Non-condensing
Vibration/Shock	IEC 60068-2-27, IEC 60068-2-6
Moisture	IP65

Configuration Data	
Graphic Display	Display used for setting CHARM address and other system settings
Maximum Valve Solenoid Outputs	48 for 501/502/503

Network Data	
Power and Bus Connector	A-Coded 5 Pin M12 Male
Diagnostics	Power, short, open load conditions are monitored

Weight	
CHARM Communications Module	320g/11.3 oz

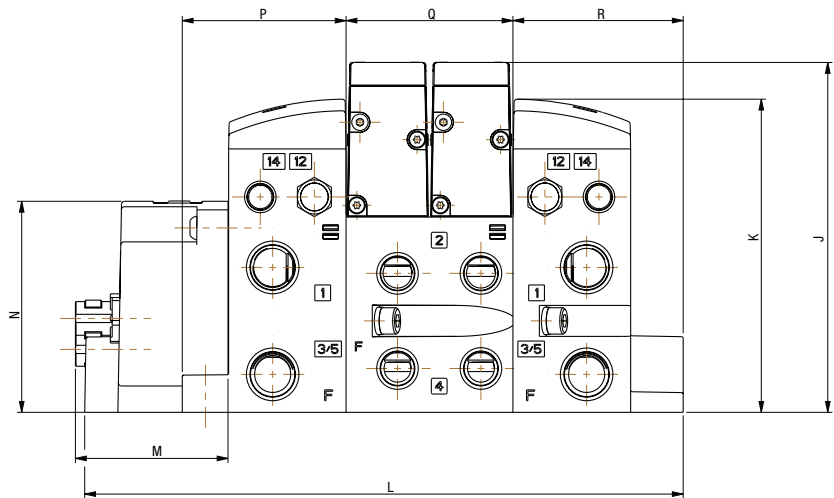
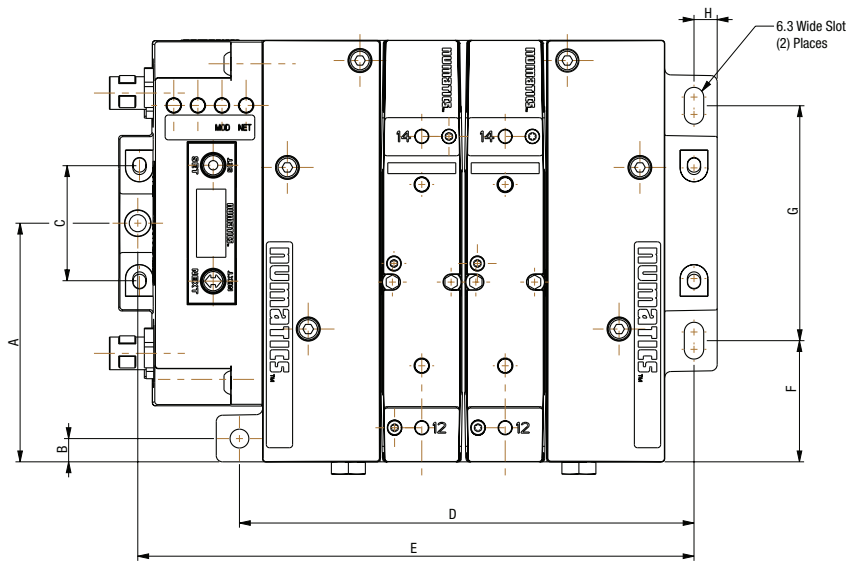
580 CHARM Power and Communication Cables and Accessories	Replacement Part Number
1.5 Meter Cables with M12 and Sub-D Connectors	P599AF519387001
0.5 Meter Cables with M12 and Sub-D Connectors	P599AF519387002
Valve Power Isolator	P599AF516881001

NOTE: Cables are not included with node and must be ordered separately.

Dimensions: mm (inches)

580 Fieldbus Manifold Assembly

503 Series Valve Manifold Assembly with 580 Electronics



A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
77 (3.032)	7.5 (0.295)	38 (1.5)	147.1 (5.79)	180 (7.087)	39.1 (1.539)	75.8 (2.984)	7.5 (0.295)	113 (4.449)	101 (3.976)	194 (7.638)	49.4 (1.945)	68.1 (2.681)	53 (2.087)	54 (2.13)	55.1 (2.169)

* For valve manifold dimensions refer to Valve Series product catalogs

How to Order

Manifold Assembly

K 501 A V 8 D 2 0 0 V A00

Port Type
¹ 8 = NPTF
¹ G = ISO 228/1-G
 K = Push-In Fittings

Product Series
 501 = 11mm Valve
 502 = 18mm Valve
 503 = 22mm Valve

Revision
 A = Initial Release

Product Type
 V = Valve Manifold Assembly

Electronics
 8 = 580 Fieldbus Electronics
 D = CHARMs Electronics

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

End Plate Style
 V = Vertical

Second Valve Series
³ 0 = No Second Valve Series
 1 = 501
 2 = 502

Valve Station Adder
 0 = No Adder
 1 = 32+
 2 = 64+
 3 = 96+

Port Size
⁴ 1 = 1/8
 2 = 1/4
 G = 5/16
 3 = 3/8
 4 = 1/2
 H = 8mm
 K = 10mm
 M = 12mm

Number of Valve Stations
² A = NA/33/65/97 Q = 17/49/81/113
 B = 2/34/66/98 R = 18/50/82/114
 C = 3/35/67/99 S = 19/51/83/115
 D = 4/36/68/100 T = 20/52/84/116
 E = NA/37/69/101 U = 21/53/85/117
 F = 6/38/70/102 V = 22/54/86/118
 G = 7/39/71/103 W = 23/55/87/119
 H = 8/40/72/104 X = 24/56/88/120
 I = 9/41/73/105 Y = 25/57/89/121
 J = 10/42/74/106 Z = 26/58/90/122
 K = 11/43/75/107 2 = 27/59/91/123
 L = 12/44/76/108 3 = 28/60/92/124
 M = 13/45/77/109 4 = 29/61/93/125
 N = 14/46/78/110 5 = 30/62/94/126
 O = 15/47/79/111 6 = 31/63/95/127
 P = 16/48/80/112 7 = 32/64/96/128

¹ Port Type 8 & G only available in Port Size 3/8 for 502 & 503 and 1/8 for 501

² 501 not available with 2 stations, 502 and 503 only available with an even number of stations and with up to 80 valve solenoids

³ With 502 11mm (501) valve available, with 503 18mm (502) valve available

⁴ 501 Port Sizes 1/8, 1/4, 5/16, 8mm, 502 and 503 Port Sizes 3/8, 1/2, 10 and 12mm

How to Order

Electronics

P 580 A E DN1 0 1 0 A00

Product Series
 580 = 580 Series Electronics

Revision
 A = Initial Release

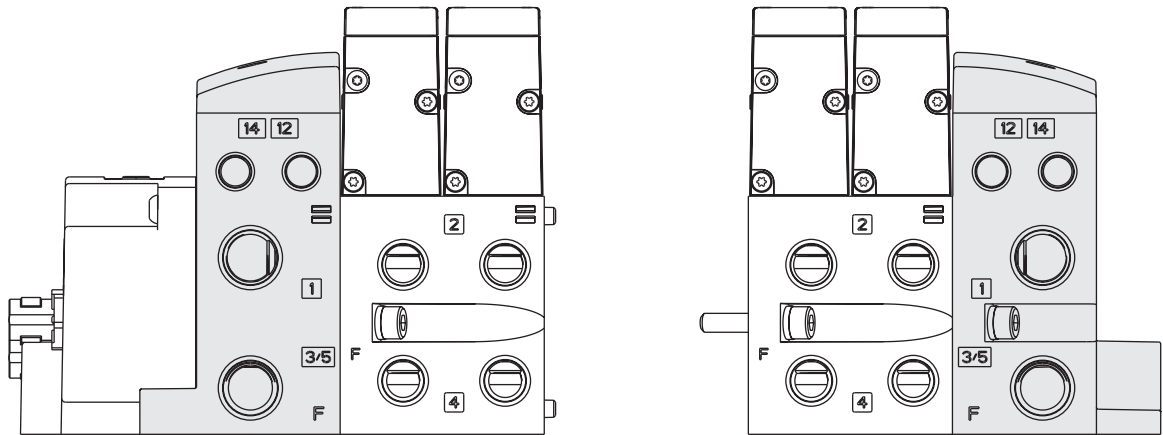
Product Type
 E = Electronics

Options
 A00 = Standard (No Options)
 DRM = DIN Rail Mount

Connector Type
 1 = M12 Connector

Protocol
 CO1 = CANopen
 DN1 = DeviceNet
 EC1 = EtherCAT
 EP1 = EtherNet/IP
 PN1 = PROFINET™
 PT1 = PROFIBUS™ DP
 PL1 = Ethernet POWERLINK
 LM1 = IO-Link Class A (4 Pin)
 LM2 = IO-Link Class B (5 Pin)
 CH1 = CHARM

Ordering Valve Manifold Assemblies with 580 Electronics
For Valve Series



Shaded components are described by the manifold assembly number (see previous page). The communications module is described by the electronic interface model number designation (see previous page). Each valve station is listed in sequential order from left to right when facing the port side of the manifold as shown.

NOTE:
Up to 128 solenoid outputs are available. Either 128 single solenoid valves or 64 double solenoid valves or any combination of singles and doubles not to exceed 128 outputs can be specified.

Example Order - 503 Shown

Assembly Kit	8503AV8H300VMUF
Valve Station #1	R503A2B40MA00F1
Valve Station #2	R503A2B40MA00F1
Mounting #1	8503AMM22MA0010
Valve Station #3	R503A2B40MA00F1
Valve Station #4	R503A2B40MA00F1
Mounting #2	8503AMM22MA0010
Valve Station #5	R503A2B40MA00F1
Valve Station #6	R503A2B40MA00F1
Mounting #3	8503AMM22MA0010
Valve Station #7	R503A2B40MA00F1
Valve Station #8	R503A2B40MA00F1
Mounting #4	8503AMM22MA0010
Electronics	P580AEDN1010A00
Assembled	

M12 A-Coded Cables



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

TC0405MAE0000000 – 5 Meter

TC0410MAE0000000 – 10 Meter

M12 Straight 5 Pin Female Single Ended Cable, Euro Color Code

TC0505MAE0000000 – 5 Meter

TC0510MAE0000000 – 10 Meter

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

TD0405MAE0000000 – 5 Meter

TD0410MAE0000000 – 10 Meter

M12 90° 5 Pin Female Single Ended Cable, Euro Color Code

TD0505MAE0000000 – 5 Meter

TD0510MAE0000000 – 10 Meter

M12 A-Coded Field Wireable Connectors



M12 Straight 4 Pin Female Field Wireable Connector

TC04F10000000000 – PG 7 Cable Gland

TC04F20000000000 – PG 9 Cable Gland

M12 Straight 5 Pin Female Field Wireable Connector

TC05F10000000000 – PG 7 Cable Gland

TC05F20000000000 – PG 9 Cable Gland

M12 90° 4 Pin Female Field Wireable Connector

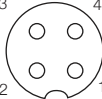
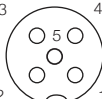
TD04F10000000000 – PG 7 Cable Gland

TD04F20000000000 – PG 9 Cable Gland

M 12 90° 5 Pin Female Field Wireable Connector

TD05F10000000000 – PG 7 Cable Gland

TD05F20000000000 – PG 9 Cable Gland

Technical Data	Cable	Field Wireable	Pin Out/Color Code																		
Molded Body/Insert	PVC/Polyamide	Polyamide	Female View     <table><tr><td>1</td><td>BN</td></tr><tr><td>2</td><td>WH</td></tr><tr><td>3</td><td>BU</td></tr><tr><td>4</td><td>BK</td></tr></table> <table><tr><td>1</td><td>BN</td></tr><tr><td>2</td><td>WH</td></tr><tr><td>4</td><td>BK</td></tr><tr><td>3</td><td>BU</td></tr><tr><td>5</td><td>GN/YE</td></tr></table>	1	BN	2	WH	3	BU	4	BK	1	BN	2	WH	4	BK	3	BU	5	GN/YE
1	BN																				
2	WH																				
3	BU																				
4	BK																				
1	BN																				
2	WH																				
4	BK																				
3	BU																				
5	GN/YE																				
Coupling Nut	Nickel Copper Alloy																				
Cable Jacket Material	PVC	NA																			
Cable O.D.	7.4mm	NA																			
Voltage Rating	125 V Max. @ 105° C																				
Current Rating	4.0 Amps																				
Degree of Protection	IP65 (mated)																				
Operating Temperature	-25° C to 85° C																				
Conductor Gauge	18 AWG	NA																			
Bend Radius	74mm	NA																			
Maximum Wire AWG	NA	18 AWG																			
Wire Connection	NA	Screw Terminal																			
PG 7 Range	NA	4 – 6mm																			
PG 9 Range	NA	6 – 8mm																			

M12 A-Coded Cables



M12 Straight 5 Pin Female Single Ended Cable - Shielded

TC0505MGD0000000 – 5 Meter

TC0510MGD0000000 – 10 Meter



M12 90° 5 Pin Female Single Ended Cable - Shielded

TD0505MGD0000000 – 5 Meter

TD0510MGD0000000 – 10 Meter



3 Way M12 "T"

TC0500000TT05000 – M12

M12 A-Coded Field Wireable Connectors



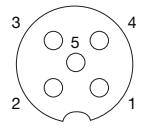
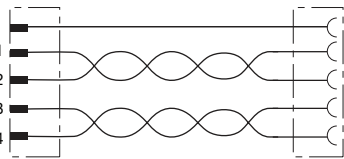
M12 90° 5 Pin Female Field Wireable Connector – Spring Cage

TD05F2000000071V – PG 9 Cable Gland



M12 Straight 5 Pin Female Field Wireable Connector – Spring Cage

TC05F2000000071V – PG 9 Cable Gland

Technical Data	Cable	M12 Field Wireable	"T"	Pin Out/Color Code
Molded Body/Insert	PVC/Polyamide	Nickel Plated Zinc/TPU	TPU/TPU GF	Female View  Pin 1=Shield Pin 2= V+ Pin 3= V- Pin 4= CAN_H Pin 5= CAN_L 
Coupling Nut	Nickel Plated Brass	Nickel Plated Brass	Nickel Plated Zinc	
Cable Jacket Material	PVC	NA	NA	
Cable O.D.	7mm	4.0 – 8mm	NA	
Voltage Rating	300 Volts	60 Volts	60 Volts	
Current Rating	4.0 Amps	4.0 Amps	4.0 Amps	
Degree of Protection	IP65 (mated)	IP 65 (mated)	IP 65 (mated)	
Operating Temperature	-40° C to 80° C	-40° C to 85° C	-25° C to 90° C	
Conductor Gauge	24 AWG (power & data)	26 – 20 AWG	NA	
Minimum Bend Radius	74mm	NA	NA	
Wire Connection	NA	Spring Cage	NA	

M12 D-Coded Cables



M12 Straight 4 Pin Male D-Coded Single Ended Cable

QA0405MT00000000 – 5 Meter

QA0410MT00000000 – 10 Meter

M12 90° 4 Pin Male D-Coded Single Ended Cable

QB0405MT00000000 – 5 Meter

QB0410MT00000000 – 10 Meter

M12 Straight 4 Pin Male D-Coded Double Ended Cable

QA0405MT0QA04000 – 5 Meter

QA0410MT0QA04000 – 10 Meter

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

QA0405MT0VA04000 – 5 Meter

QA0410MT0VA04000 – 10 Meter

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

QA04D2MK0VC04000 – 0.2 Meter

M12 D-Coded Field Wireable Connectors



M12 90° 4 Pin Male D-Coded Field Wireable Connector w/ IDC

QB04F200R000071N – PG 9 Cable Gland – IDC

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

QA04F200R000071N – PG 9 Cable Gland – IDC

Technical Data	Cable	M12 Field Wireable	Pin Out/Color Code
Molded Body/Insert	PVC/PE	Nickel Plated Zinc/PA 66	Male View 1 YE 2 WH 3 OG 4 BU
Coupling Nut	Nickel Plated Zinc	Nickel Plated Brass	
Cable Jacket Material	PUR	NA	
Cable O.D.	6.5mm	8.0mm	
Voltage Rating (Nominal)	300 Volts	60 Volts	
Current Rating	2.0 Amps	1.75 Amps	
Degree of Protection	IP65 (mated)	IP65 (mated)	
Operating Temperature	-5° C to 50° C	-40° C to 85° C	
Conductor Gauge	22 AWG	26 – 22 AWG	
Bend Radius	46mm	NA	
Wire Connection	NA	IDC	

M12 D-Coded Cables



M12 Straight 4 Pin Male D-Coded Single Ended Cable

QA0405MK00000000 – 5 Meter

QA0410MK00000000 – 10 Meter

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

QA0405MK0VA04000 – 5 Meter

QA0410MK0VA04000 – 10 Meter

M12 90° 4 Pin Male D-Coded Single Ended Cable

QB0405MK00000000 – 5 Meter

QB0410MK00000000 – 10 Meter

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

QA04D2MK0VC04000 – 0.2 Meter

M12 D-Coded Field Wireable Connectors



M12 90° 4 Pin Male D-Coded Field Wireable Connector w/ IDC

QB04F2000000071N – PG 9 Cable Gland – IDC

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

QA04F2000000071N – PG 9 Cable Gland – IDC

Technical Data	Cable	M12 Field Wireable	Pin Out/Color Code
Molded Body/Insert	PUR/Polyamide	Nickel Plated Zinc/PA 66	Male View
Coupling Nut	Nickel Plated Brass	Nickel Plated Brass	
Cable Jacket Material	PUR	NA	
Cable O.D.	5.6mm	4.0 – 8mm	
Voltage Rating (Nominal)	300 Volts	60 Volts	
Current Rating	2.0 Amps	1.75 Amps	
Degree of Protection	IP65 (mated)	IP 65 (mated)	
Operating Temperature	-40° C to 75° C	-40° C to 85° C	
Conductor Gauge	24 AWG	IDC 26 – 22 AWG	
Bend Radius	61mm	NA	
Wire Connection	NA	IDC	

M12 Class A & B Compatible Cables*



M12 Straight 5 Pin Female Single Ended Cable - Unshielded

TC0505MIE000071P – 5 Meter
TC0510MIE000071P – 10 Meter



M12 Straight 5 Pin Female to Male Double Ended Cable - Unshielded

TC0505MIETA0571P – 5 Meter
TC0510MIETA0571P – 10 Meter



M12 90° 5 Pin Female Single Ended Cable - Unshielded

TD0505MIE000071P – 5 Meter
TD0510MIE000071P – 10 Meter



M12 90° 5 Pin Female to Male Double Ended Cable - Unshielded

TD0505MIETA0571P – 5 Meter
TD0510MIETA0571P – 10 Meter

* See page 54 for M12 4 Pin cables if the selected IO-Link® Master does not accept 5 Pin cables. Maximum IO-Link® cable length is 20m.

M12 Class A & B Compatible Field Wireable Connectors*



M12 Straight 5 Pin Male Field Wireable Connector – Screw Terminal

TA05F10000000000 – PG 7 Cable Gland



M12 90° 5 Pin Male Field Wireable Connector – Screw Terminal

TB05F10000000000 – PG 7 Cable Gland

* See page 54 for M12 4 Pin field wireable connectors if the selected IO-Link® Master does not accept 5 Pin field wireable connectors. Maximum IO-Link® cable length is 20m.

Technical Data	Cable	M12 Field Wireable	Pin Out/Color Code
Molded Body/Insert	TPU	Polyamide	Female View
Coupling Nut	Nickel Plated Zinc	Nickel Plated Zinc	
Cable Jacket Material	PUR	NA	
Cable O.D.	5mm	Accepts 3.0 – 6.5mm	
Voltage Rating	60 Volts	125 Volts	
Current Rating	4.0 Amps	4.0 Amps	
Degree of Protection	IP65 (mated)	IP65 (mated)	
Operating Temperature	-25° C to 90° C (-13° F to 194° F)	-20° C to 100° C (-4° F to 212° F)	
Conductor Gauge	22 AWG	18 – 24 AWG	
Minimum Bend Radius	50mm	NA	
Wire Connection	NA	Screw Terminal	

M12 B-Coded (Reverse Key) Cables



M12 Straight 5 Pin Male & Female Single Ended Cables

RA0505MHP0000000 – 5 Meter – MALE
RA0510MHP0000000 – 10 Meter – MALE
RC0505MHP0000000 – 5 Meter – FEMALE
RC0510MHP0000000 – 10 Meter – FEMALE

M12 Straight 5 Pin Male – to – Female Double Ended Cables

RC0505MHPRA05000 – 5 Meter
RC0510MHPRA05000 – 10 Meter

M12 90° 5 Pin Male & Female Single Ended Cable

RB0505MHP0000000 – 5 Meter – MALE
RB0510MHP0000000 – 10 Meter – MALE
RD0505MHP0000000 – 5 Meter – FEMALE
RD0510MHP0000000 – 10 Meter – FEMALE

M12 B-Coded (Reverse Key) Field Wireable Connectors



M12 90° 5 Pin Male & Female Field Wireable Connector w/ IDC

RB05F200P000071V – PG9 Cable Gland – IDC MALE
RD05F200P000071V – PG9 Cable Gland – IDC FEMALE

M12 Straight 5 Pin Male & Female Field Wireable Connector

RA05F200P0000000 – PG7 Cable Gland – MALE
RC05F200P0000000 – PG7 Cable Gland – FEMALE

M12 Straight 5 Pin Terminating Resistor

RA05TR0000000000 – MALE

M12 Bus “T”

RA050000PRT05000

Technical Data	Cable	Field Wireable	"T"	Pin Out/Color Code
Molded Body	PUR	Nickel Plated Zinc/Brass	Aluminum	Male View 1 2 3 4 5 GN RD
Insert	Polyamide	TPU/PVC	Nylon	
Coupling Nut	Nickel Plated Brass	Nickel Plated Brass/Stainless Steel	Nickel Plated Brass	
Cable Jacket Material	PVC	NA	NA	
Cable O.D.	8.5mm	4.0 – 8.0mm/3.0 – 6.5mm	NA	
Voltage Rating	300 Volts	60 Volts	250 Volts	
Current Rating	4.0 Amps	4.0 Amps	4.0 Amps	
Degree of Protection	IP65 (mated)	IP65 (mated)	IP65 (mated)	
Operating Temperature	-40° C to 80° C	-40° C to 85° C	-40° C to 80° C	
Conductor Gauge	22 AWG	26 – 20 AWG/24 – 18 AWG	NA	
Minimum Bend Radius	74mm	NA	NA	
Wire Connection	NA	IDC/Screw Terminal	NA	

M12 D-Coded Cables



M12 Straight 4 Pin Male D-Coded Single Ended Cable

QA0405MR00000000 – 5 Meter

QA0410MR00000000 – 10 Meter

M12 90° 4 Pin Male D-Coded Single Ended Cable

QB0405MR00000000 – 5 Meter

QB0410MR00000000 – 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 Converter

QA04D2MK0VC04000 – 0.2 Meter

M12 D-Coded Field Wireable Connectors



M12 90° 4 Pin Male D-Coded Field Wireable Connector w/ IDC

QB04F200R000071N – PG 9 Cable Gland – IDC

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

QA04F200R000071N – PG 9 Cable Gland – IDC

Technical Data	Cable	M12 Field Wireable	Pin Out/Color Code
Molded Body/Insert	PUR/PUR or PE	Nickel Plated Zinc/PA 66	Male View
Coupling Nut	Nickel Plated Zinc and Brass	Nickel Plated Brass	
Cable Jacket Material	PVC	NA	
Cable O.D.	6.5mm/74mm	4.0 – 8.0mm	
Voltage Rating (Nominal)	42 Volts	60 Volts	
Current Rating	1.5 Amps	1.75 Amps	
Degree of Protection	IP65 (mated)	IP65 (mated)	
Operating Temperature	-25° C to 60°	-40° C to 85° C	
Conductor Gauge	24 & 22 AWG	26 – 22 AWG	
Bend Radius	19.5mm	NA	
Wire Connection	NA	IDC	



Global Contacts

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Brazil	(55) 11-4208-1700	Germany	(49) 7237-9960	Singapore	(65) 6556-1100
Canada	(1) 519-758-2700	India	(91) 44-39197300	South Korea	(82) 2-3483-1570
China	(86) 21-3395-0000	Italy	(39) 02-356931	Spain	(34) 942-87-6100
Czech Republic	(420) 235-090-061	Japan	(81) 798-65-6361	United Kingdom	(44) 1695-713600
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