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

Graphic Display for configuration & diagnostics

580 Fieldbus Communications Electronics

Why use AVENTICS 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™ 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.

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.

AVENTICS' 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 50 °C (-10 °F to 122 °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.

AVENTICS' 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 50 °C (-10 °F to 122 °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.

AVENTICS' 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 50 °C (-10 °F to 122 °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™ 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.

AVENTICS' 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).

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

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

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 50 °C (-10 °F to 122 °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.

AVENTICS' 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 50 °C (-10 °F to 122 °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	Class A: 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.

AVENTICS' 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 50 °C (-10 °F to 122 °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/10.5 oz, Class B: 303g/10.7 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.

AVENTICS' 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 50 °C (-10 °F to 122 °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.

AVENTICS' 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 50 °C (-10 °F to 122 °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)	P580AECH2010A00

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 50 °C (-10 °F to 122 °F)
Humidity	95% Relative Humidity, Non-condensing
Vibration/Shock	IEC 60068-2-27, IEC 60068-2-6
Moisture	IP65

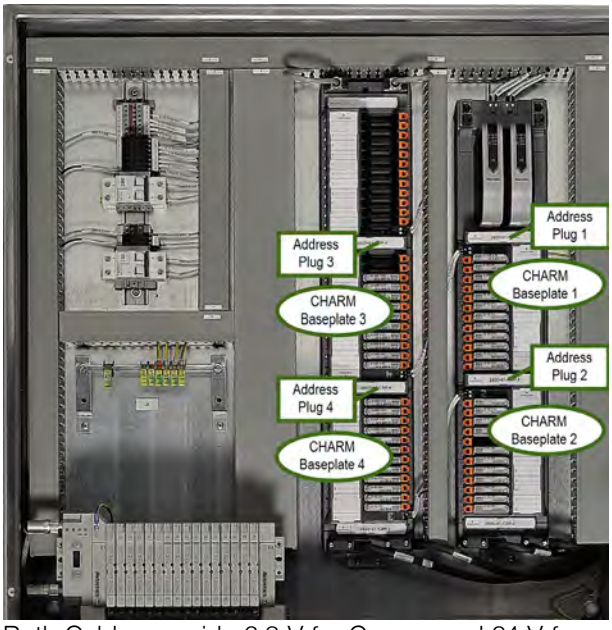
Configuration Data	
Graphic Display	Display used for setting CHARM address and other system settings
Maximum Valve Solenoid Outputs	96 for 501, 64 for 502 / 503

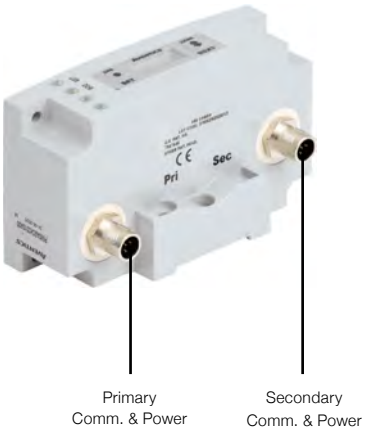
Network Data	
Power and Bus Connector	A-Coded 5 Pin M12 Male
Diagnostics	Power, short, open load conditions are monitored

Weight	
CHARM Communications Module	320g/11.3 oz

CHARM Communication & Power Connection

The front panel of the communication module is equipped with a 5 pin M12.



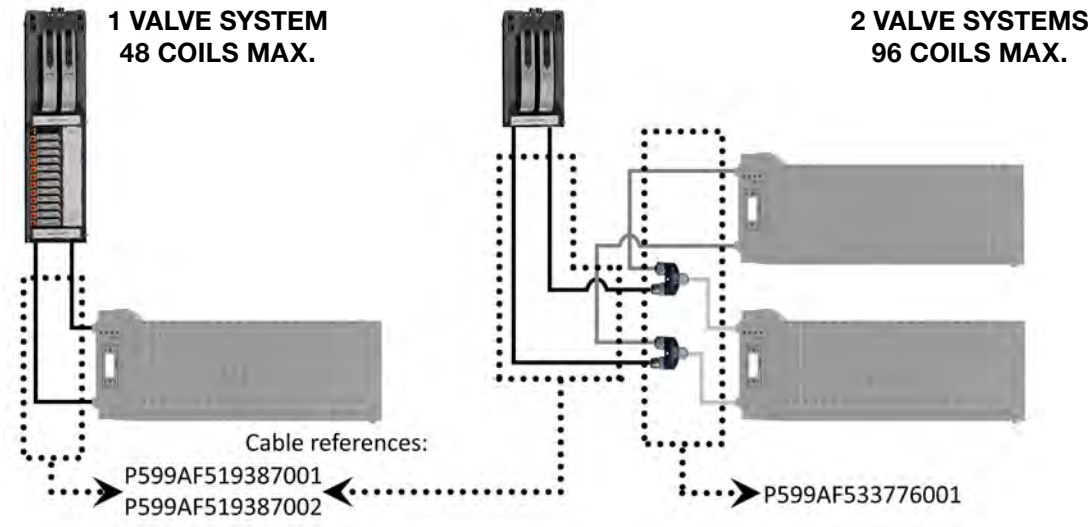


Both Cables provide 6.3 V for Comm. and 24 V for valve Power

Accessories for CHARM

Accessory	Description	Order Code
-	1.5 Meter Cable with M12 and Sub-D Connectors (Moulded version)	P599AF519387001
-	0.5 Meter Cable with M12 and Sub-D Connectors (Moulded version)	P599AF519387002
	Valve Power Isolator M12-Y	P599AF516881001
-	Cable kit to connect 2 CHARM modules for 96 coils capability maximum	P599AF533776001

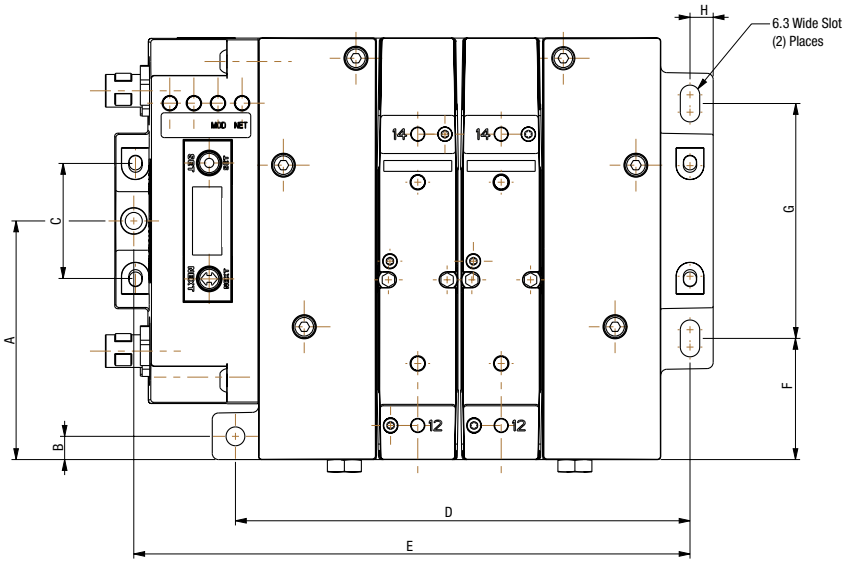
NOTE: Cables are not included with node and must be ordered separately.

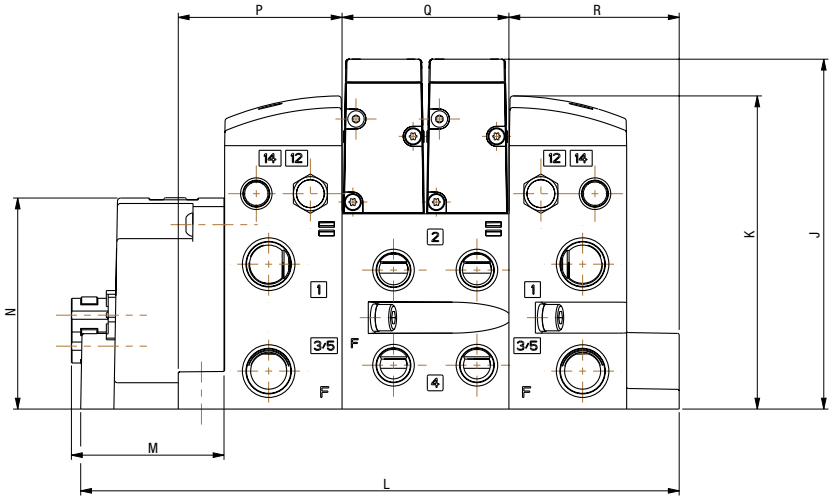


Dimensions: mm (inches)

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

[2] Number of Valve Stations

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

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 Moung
F06 = (14X) External Pilot Supply from Port #14, (MUF) Muffler in End Plates, and (DRM) DIN Rail Mount

End Plate Style
V = Vertical

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

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

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

[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

Electronics

P 580 A E DN1 0 1 0 A00

Product Series
580 = 580 Series Electronics

Revision
A = Initial Release

Product Type
E = Electronics

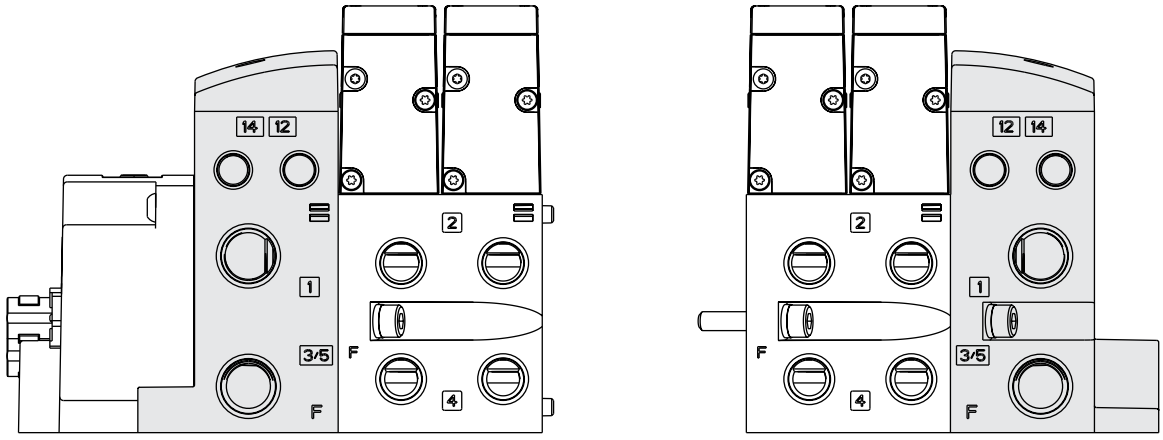
Options
A00 = Standard (No Options)
DRM = DIN Rail Mount

Connector Type
1 = M12 Connector

Protocol
CO1 = CANopen
DN1 = DeviceNet
EC1 = EtherCAT
ED1 = EtherNet/IP DLR
PN1 = PROFINET™
PT1 = PROFIBUS™ DP
PL1 = Ethernet POWERLINK
LM1 = IO-Link Class A (4 Pin)
LM2 = IO-Link Class B (5 Pin)
CH2 = 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

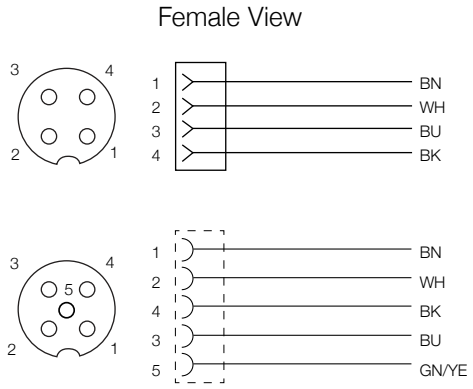
M12 A-Coded Field Wireable Connectors

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	
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

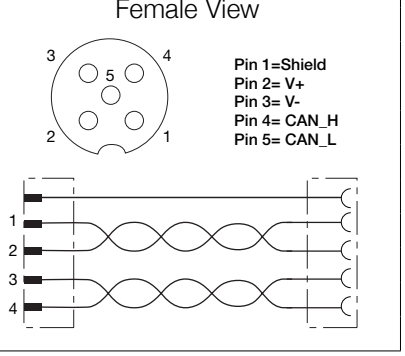
3 Way M12 “T”
TC0500000TT05000 – M12

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	
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

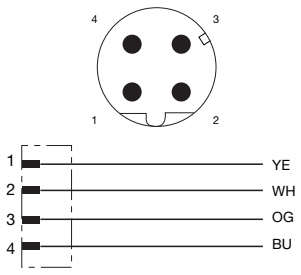
M12 Straight 4 Pin Male D-Coded to RJ45 Female Socket Convertor
QA04D2MK0VC04000 – 0.2 Meter

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
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

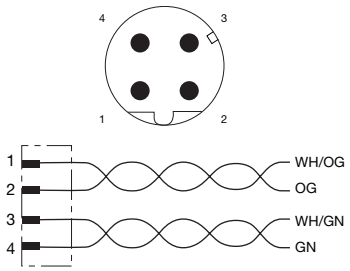
M12 Straight 4 Pin Male D-Coded to RJ45 Female Socket Convertor
QA04D2MK0VC04000 – 0.2 Meter

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

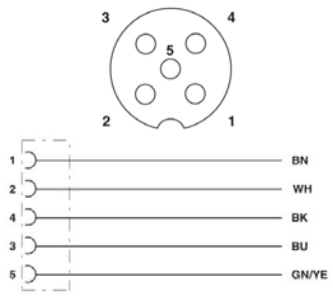
* See page 107 for M12 4 Pin cables if the selected IO-Link® Master does not accept 5 Pin cables. Maximum IO-Link® cable length is 20m.

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 107 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

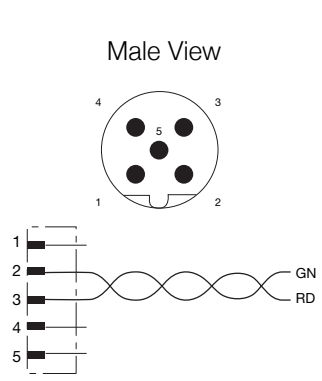
M12 90° 5 Pin Male & Female Field Wireable Connector w/ IDC
RB05F200P000071V – PG9 Cable Gland – IDC MALE
RD05F200P000071V – PG9 Cable Gland – IDC FEMALE

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	
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

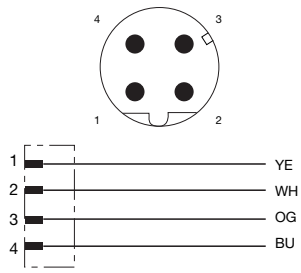
M12 Straight 4 Pin Male D-Coded to Male RJ45 Cable
QA0405MR0VA04000 – 5 Meter
QA0410MR0VA04000 – 10 Meter

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

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