## numatics...

# Pneumatic valve islands







# 580 Electronics

# **numatics**<sub>m</sub>

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#### FIELDBUS ELECTRONICS

#### numatics...

580 Electronics

(Series 501 -502 - 503: M7 to 3/8 (G or NPT) or with push-in fittings Ø4 to 12 mm)

#### 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-tests activation
- · Log of network errors



Why use Numatics Fieldbus communication electronics?

#### Modular Reality...

- · No internal wiring simplifies assembly
- Power connector allows output power to be removed while inputs and communication are left active
- · IP65 protection
- 128 coils for 501 80 coils for 502/503
- · Valve manifold emulates up to 3 CHARM baseplates
- · Redundant Power and Communication to manifold
- · Uses native CHARM, DeltaV and AMS diagnostics

#### **Supported Protocols**

- CANopen®
- DeviceNet™
- EtherNet/IP™
- PROFIBUS-DP® (1)
- PROFINET® (1)
- EtherCAT® (1)
- EtherNet/IPTM DLR (1)
- CHARM (Max. 48 coils)
- POWERLINK
- IO-Link®\*
- \* IO-Link® is a communication network that requires an IO-Link® Master with a higher level fieldbus or Ethernet communication protocol.

(1) 32+ capable







Graphic Display for configuration & diagnostics



Compact Electronic Module



#### **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 regarding this organization can be found at: www.can-cia.org



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



COMMUNICATION 2 MALE

Pin 1 = Shield Pin 2 = V+ (24 V DC) Pin 3 = V- (Ground) Pin 4 = CAN\_H Pin 5 = CAN\_L POWER MALE

Pin 1 = +24 V DC (node) Pin 2 = +24 V DC (Valves) Pin 3 = 0 V DC (node) Pin 4 = 0 V DC (Valves)

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	0,070 A
BUS Power	11-25 VDC	0,025 A
Valves	24 VDC +/- 10%	8 A Maximum
Power Connector	Single key 4 pin M12 (male)	
Communication Connector	Single key 5 pin M12 (male)	
LED's	Module Status and Network Status	

Operating Data	
Temperature Range (ambient)	-10°C to +50°C
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
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

.	Mainh	
5	Weight	
,	CANopen® Communications Module	252 g



#### CANopen® bus connection

the front panel of the communication module for Canopen® is equipped with a 5 pin male M12-A socket for the bus cable.

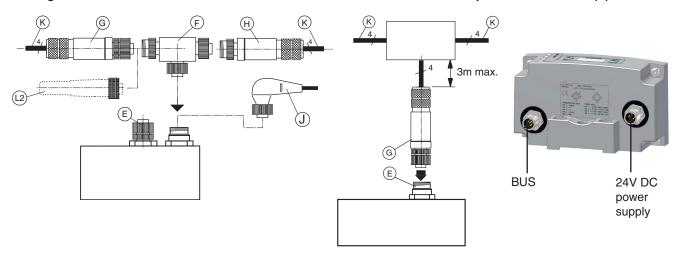
The bus can be connected in the two following ways:

- directly to the module with a T-connector;
- with a straight connector, cable (max. length: 3 m) and a CANopen® distributor box.

The modules on either side of the system must be provided with terminating resistors (L1 or L2).

#### ■ Wiring with T-connector

#### ■ Connection with CANopen® distributor box (X)



#### Accessories for CANopen®

The modules on either side of the system must be provided with terminating resistors  $\boldsymbol{\varTheta}$ 

	Accessory	Description	Order Code
G		M12 90° 5 Pin Female Field Wireable network Connector – Spring Cage (A coded) PG9 cable gland	TD05F2000000071V
		M12 Straight 5 Pin Female Field Wireable network Connector – Spring Cage PG9 cable gland	TC05F2000000071V
Н		M12 Straight 5 Pin Male Field Wireable network Connector – Spring Cage PG9 cable gland	TA05F2000000071V
F		3 Way M12 "T" (T-connector M12, 5 male / female / female pins)	TC0500000TT05000
L2		Terminating resistor male plug	TA05TR0000000000
		Terminating resistor female plug	88157770
		M12 90° 4 Pin Female Field Wireable Connector (PG 9 Cable Gland) (4 pin elbow female cable connector 7/8"	TD04F20000000000
J		M12 90° 4 Pin Female Single Ended Cable, Euro Color Code (4 pin elbow female cable connector 90° with 10 m cable)  1 2 BN (brown) WH (white) 3 BU (blue) 4 BK (black)	TD0410MAE0000000

(K) Cable to be ordered separately.

#### **DeviceNet™**

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

Numatics' 580 nodes for DeviceNet<sup>™</sup> have an integrated graphic display.

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

More information about DeviceNet<sup>™</sup> and the ODVA can be obtained from the following WEB site: www.odva.org



Description	Replacement Part Number
DeviceNet <sup>™</sup> communications module (node)	P580AEDN1010A00



COMMUNICATION 2 4 3 MALE Pin 1 = Shield

Pin 1 = Shield Pin 2 = V+ (24 V DC) Pin 3 = V- (Ground) Pin 4 = CAN\_H Pin 5 = CAN\_L POWER MALE

Pin 1 = +24 V DC (node)
Pin 2 = +24 V DC (Valves)
Pin 3 = 0 V DC (node)
Pin 4 = 0 V DC (Valves)

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	0,070 A
BUS Power	11-25 VDC	0,025 A
Valves	24 VDC +/- 10%	8 A Maximum
Power Connector	Single key 4 pin M12 (male)	
Communication Connector	Single key 5 pin M12 (male)	
LED's	Module Status and Network Status	

Operating Data	
Temperature Range (ambient)	-10°C to +50°C
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	or 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™ Communication Module	252 g



#### DeviceNet<sup>™</sup> bus connection

the front panel of the communication module for DeviceNet™ is equipped with a 5 pin M12-A male socket.

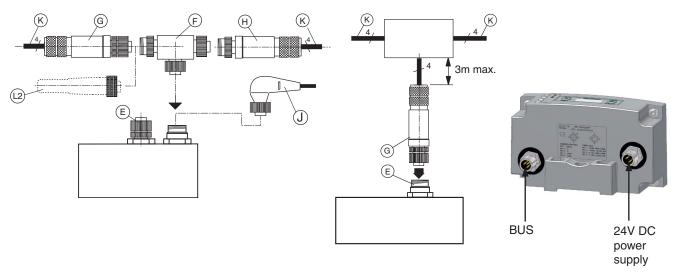
The bus can be connected in the two following ways:

- directly to the module with a T-connector;
- with a straight connector, cable (max. length: 3 m) and a DeviceNet distributor box.

The modules on either side of the system must be provided with terminating resistors (L1 or L2).

#### **■** Wiring with T-connector

#### ■ Connection with DeviceNet<sup>™</sup> distributor box (X)



#### Accessories for DeviceNet™

The modules on either side of the system must be provided with terminating resistors (H)

	Accessory	Description	Order Code
G		M12 90° 5 Pin Female Field Wireable network Connector – Spring Cage (A coded) PG9 cable gland	TD05F2000000071V
G		M12 Straight 5 Pin Female Field Wireable network Connector – Spring Cage PG9 cable gland	TC05F2000000071V
Н		M12 Straight 5 Pin Male Field Wireable network Connector – Spring Cage PG9 cable gland	TA05F2000000071V
F		3 Way M12 "T" (T-connector M12, 5 male / female / female pins)	TC0500000TT05000
		Terminating resistor male plug	TA05TR0000000000
L2	L2	Terminating resistor female plug	88157770
		M12 90° 4 Pin Female Field Wireable Connector (PG 9 Cable Gland) (4 pin elbow female cable connector 7/8"	TD04F20000000000
J		M12 90° 4 Pin Female Single Ended Cable, Euro Color Code (4 pin elbow female cable connector 90° with 10 m cable)   BN (brown)  WH (white)  BU (blue)  BK (black)	TD0410MAE0000000

(K) Cable to be ordered separately.

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#### **EtherNet/IP™**

Ethernet<sup>™</sup> used throughout the world to network millions of PC's has now evolved into a viable industrial network. Ethernet<sup>™</sup> 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<sup>™</sup> technology can integrate an on-board Web server, which can make the node readily accessible for configuration, testing and even retrieval of technical documentation.

Numatics' 580 nodes for Ethernet<sup>™</sup> 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 $^{\text{TM}}$  and the ODVA can be obtained from the following WEB site: www.odva.org



Description	Replacement Part Number
Ethernet/IP™ communications module (node)	P580AEEP1010A00

communications module (node) P580AEEP1010A00

#### Ethernet/IP™

COMMUNICATION FEMALE

Pin 3 = TX-Pin 4 = RX-

E
Pin 1 = TX+
Pin 2 = RX+

POWER MALE 2

Pin 1 = +24 V DC (node) Pin 2 = +24 V DC (Valves) Pin 3 = 0 V DC (node) Pin 4 = 0 V DC (Valves)

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	0,091 A
Valves	24 VDC +/- 10%	8 A maximum
Power Connector	Single key 4 pin M12 (male)	
Communication Connector	D-coded 5 pin M12 (female)	
LED's	Module Status, Network Status and Activity/Link	

Operating Data		
Temperature Range (ambient)	-10°C to +50°C	
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 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 5 pin M12 (female)	
Diagnostics	Power, short, open load conditions and module health are monitored	
Special Features Integrated web server, fail-safe device settings, HTTP, FTP, and UNICAST (for EtherNet/IP)		

Weight	
Ethernet Communication Module	336 g



#### Accessories for EtherNet/IP™

Accessory	Description		Order Code
	M12 Straight 4 Pin Male D-Coded to Male RJ45 network Cable - Shielded	5 m	QA0405MK0VA04000
		10 m	QA0410MK0VA04000
	M12 elbow 4 Pin Male D-Coded Field Wireable network Connector PG 9 Cable Gland – Screw Terminal		QB04F2000000071N
A	M12 90° 4 Pin Female Field Wireable Connector (PG 9 Cable Gland) (4 pin elbow female cable connector 7/8"		TD04F20000000000
	M12 90° 4 Pin Female Single Ended Cable, Euro Color Code (4 pin elbow female cable connector 90° with 10 m cable)  BN (brown)  WH (white)  BU (blue) BK (black)		TD0410MAE0000000

#### **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 WEB site:

www.profibus.com



Description	Replacement Part Number
PROFIBUS-DP® communications module DPV0/DPV1	P580AEPT1010A00

#### PROFIBUS-DP®

**POWER** 

Pin 1 = +24 V DC (node) Pin 2 = 0 V DC (Valves)

Pin 4 = +24 V DC (Valves)

Pin 5 = Earth Ground

MALE

#### COMMUNICATION 1 FEMALE OUT 4

LE OUT 4 Pin 1 = +5V DC Pin 2 = RxD/TxD-N / Data Line A

Pin 2 = RxD/TxD-N / Data Line A Pin 3 = DATA GROUND (0V DC) Pin 4 = RxD/TxD-P / Data Line B

Pin 5 = No Connected Thread = Shield

COMMUNICATION 2 4

MALE IN
Pin 1 = No Connected
Pin 2 = RxD/TxD-N / Data Line A

Pin 3 = No Connected Pin 4 = RxD/TxD-P / Data Line B

Pin 5 = No Connected Thread = Shield

Electrical Data	Voltage	Current
Node Power at Max. Brightness	24 VDC +/- 10%	0,094 A
Valves	24 VDC +/- 10%	4 A Maximum
Power Connector	Single key 5 pin M12 (male)	
Communication Connector	Single reverse key (B-Coded) 5 pin M12 (1 male and 1 female)	
LED's	Module Status and Network Status	

Operating Data		
Temperature Range (ambient)	-10°C to +50°C	
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, Diagnostics and all other system settings.
Maximum Valve-Solenoid Outputs	128 (501), 80 (502-503)

Network Data	
Supported Baud Rates	Auto-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
Special Features	Supports Auto-Device Replacement (ADR) and fail-safe device settings

Weight	
PROFIBUS-DP® Communication Module	342 g

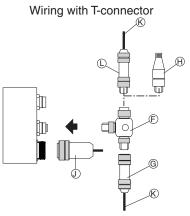


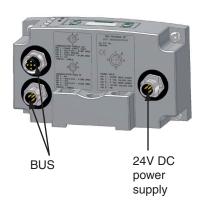
#### PROFIBUS-DP® bus connection

The front panel of the communication module for Profibus-DP® is equipped with:

- a 5 pin male M12 socket for power supply
- a 5 pin male M12-B socket or 5 pin female M12-A socket for the bus cable (with a T-connector on integrated M12 COM-IN/COM-OUT connector)

#### Fieldbus connection





#### Accessories for PROFIBUS-DP®

The modules on either side of the system must be provided with terminating resistors (H)

	Accessory	Description	Order Code
F		T-connector M12-B, 5 female / male / male pins (Profibus 12Mb max)	88100712
9000		M12-B network connector , 5 female pins - for cable dia. 6 - 8 mm (Profibus 12Mb max)	88100713
G		M12 90° 5 Pin Male & Female Field Wireable network Connectors, w/IDC PG9 Cable Gland – IDC FEMALE	RD05F200P000071V
		M12-B network connector , 5 male pins - for cable dia. 6 - 8 mm (Profibus 12Mb max)	88100714
		M12 90° 5 Pin Male & Female Field Wireable network Connectors, w/IDC PG9 Cable Gland – IDC MALE	RB05F200P000071V
н		Terminating resistor M12-B - male plug	88100716
		M 12 90° 5 Pin Female Field Wireable Connector (24 V DC supply, PG 9 Cable Gland)	TD05F20000000000
J		M12 90° 5 Pin Female Single Ended Cable, Euro Color Code (5 pin elbow female cable connector, 24 V DC supply, with 10 m cable)  BN (brown)  WH (white)  HE (black)  BU (blue)  GN/YE (green/yellow)	TD0510MAE0000000
		Dust cover - M12 female	88157773

#### **PROFINET®**

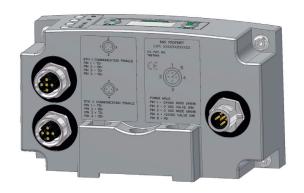
PROFINET® is the innovative open standard for Industrial Ethernet, development by Siemens and the Profibus® User Organization (PNO). PROFINET® complies to IEC 61158 and IEC 61784 standards. PROFINET® products are certified by the PNO user organization, guaranteeing worldwide compatibility.

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. Additionally, the 580 node PROFINET® can integrate an on-board Web server, which can make the node readily accessible for configuration, testing and even retrieval of technical documentation.

More information regarding PROFINET® can be obtained from the following WEB site: www.profibus.com

Remark: Compatibility with MRP functionnalities.



Description	Replacement Part Number
PROFINET® communications module (node)	P580AEPN1010A00

#### **PROFINET®** POWER COMMUNICATION **FEMALE** MALE Pin 1 = TD+ Pin 1 = +24 V DC (node) Pin 2 = RD+Pin 2 = 0 V DC (Valves) Pin 3 = 0 V DC (node) Pin 4 = RD-Pin 4 = +24 V DC (Valves) Pin 5 = Earth Ground COMMUNICATION FEMALE Pin 1 = TD+Pin 2 = RD+Pin 3 = TD-Pin 4 = RD-

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

Operating Data		
Temperature Range (ambient)	-10°C to +50°C	
Humidity	95% relative humidity, non-condensing	
Vibration / Shock	IEC 60068-2-27, IEC60068-2-6	
Moisture Protection	IP65	

Configuration Data			
Graphic Display			
Maximum Valve-Solenoid Outputs	128 (501), 80 (502-503)		

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

Weight	
PROFINET® Communication Module	342 g



#### Accessories for PROFINET®

Accessory	Description		Order Code
	M12 Straight 4 Din Mala D Coded to Mala D 145 naturals Cable. Shielded	5 m	QA0405MK0VA04000
5	M12 Straight 4 Pin Male D-Coded to Male RJ45 network Cable - Shielded	10 m	QA0410MK0VA04000
8	M12 elbow 4 Pin Male D-Coded Field Wireable network Connector PG 9 Cable Gland – Screw Terminal		QB04F2000000071N
4	M 12 90° 5 Pin Female Field Wireable Connector (24 V DC supply, PG 9 Cable Gland)		TD05F20000000000
	M12 90° 5 Pin Female Single Ended Cable, Euro Color Code (5 pin elbow female cable connector, 24 V DC supply, with 10 m cable)  BN (brown)  WH (white)  BK (black)  BU (blue)  5   GN/YE (green/yellow)		TD0510MAE0000000

#### **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.

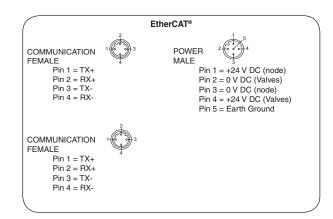
Numatics' 580 EtherCAT® node has an integrated graphic display for simplified commissioning and diagnostics.

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 web site: www.ethercat.org



Description	Replacement Part Number
EtherCAT® communications module	P580AEEC1010A00



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

Operating Data	
Temperature Range -10°C to +50°C	
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 (501), 80 (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	227 g



#### Accessories for EtherCAT®

Accessory	Description		Order Code
	M12 Straight 4 Pin Male D-Coded to Male RJ45 network Cable - Shielded		QA0405MK0VA04000
5	W12 Straight 4 Fill Male D-Coded to Male h343 Hetwork Cable - Shielded	10 m	QA0410MK0VA04000
6	M12 elbow 4 Pin Male D-Coded Field Wireable network Connector PG 9 Cable Gland – Screw Terminal		QB04F2000000071N
A	M 12 90° 5 Pin Female Field Wireable Connector (24 V DC supply, PG 9 Cable Gland)		TD05F20000000000
>	M12 90° 5 Pin Female Single Ended Cable, Euro Color Code (5 pin elbow female cable connector, 24 V DC supply, with 10 m cable)  BN (bi	hite) ack)	TD0510MAE0000000

#### EtherNet/IP™ DLR

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

Numatics' 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). 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 $^{\text{TM}}$  nodes have been tested and approved for conformance by the ODVA

More information about EtherNet<sup>™</sup> and the ODVA can be obtained from the following WEB site:

Open Device Vendors Association (ODVA) www.odva.org



Description	Replacement Part Number
EtherNet/IP DLR communications module (node)	P580AEED1010A00

# Ethernet/IPTM DLR COMMUNICATION 1 FEMALE Pin 1 = TX+ Pin 2 = RX+ Pin 3 = TX Pin 4 = RX Pin 4 = O V DC (valves) Pin 4 = O V DC (valves)

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

5	Operating Data	
Temperature Range -10°C to +50°C		-10°C to +50°C
2	Humidity	95% relative humidity, non-condensing
20	Vibration / Shock	IEC 60068-2-27, IEC 60068-2-6
	Moisture	IP65 Certified

Configuration Data	
Graphic Display Display used for setting IP address, Subnet Mask, Fault / Idle Actions, Diagnostics and all other system settings.	
Maximum Valve Solenoid Outputs 128 (501), 80 (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, fail-safe device settings, integrated web server, HTTP, TF UNICAST	

Weight	
EtherNet/IP™ DLR communications module	227 g



#### Accessories for EtherNET/IP™ DLR

Accessory	Description		Order Code
	5 m  M12 Straight 4 Pin Male D-Coded to Male RJ45 network Cable - Shielded		QA0405MK0VA04000
5		10 m	QA0410MK0VA04000
	M12 elbow 4 Pin Male D-Coded Field Wireable network Connector PG 9 Cable Gland – Screw Terminal		QB04F2000000071N
A	M12 90° 4 Pin Female Field Wireable Connector (PG 9 Cable Gland) (4 pin elbow female cable connector 7/8"		TD04F20000000000
	M12 90° 4 Pin Female Single Ended Cable, Euro Color Code (4 pin elbow female cable connector 90° with 10 m cable)  1 2 WH (whi 3 BU (blue BK (blace)	te)	TD0410MAE0000000

#### 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 $^{\otimes}$  is used to individually link field devices and resides below the I/O level. An IO-Link $^{\otimes}$  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 <sup>®</sup> Class A (4 pin) Communications Module (node)	P580AELM1010A00
IO-Link <sup>®</sup> Class B (5 pin) Communications Module (node)	P580AELM2010A00

#### IO-Link® (Class A & Class B)

The IO-Link® (Port Type A) M12 male connector

Pin 1 = +24 V DC PWR Pin 2 = +24 V DC (Valves)

Pin 3 = 0 V DC PWR (Valves) Pin 4 = IO-Link COMM (C/Q) Pin 5 = NO CONNECT

The IO-Link® (Port Type B) connector is a single keyway 4 pin connector is a single keyway 5 pin M12 male connector

Pin 1 = +24 V DC PWR Pin 2 = +24 V DC (Valves) Pin 3 = 0 V DC PWR

Pin 4 = IO-Link COMM (C/Q) Pin 5 = 0 V DC (Valves)

#### **Technical Data**

Electrical Data	Voltage	Current	
Node Power	24 VDC +/- 10%	0,020 A	
Valves	24 VDC +/- 10%	4 A 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, Communication		

Operating Data		
Temperature Range (ambient)	-10°C to 50°C	
Humidity	95% Relative Humidity, Non-condensing	
Vibration/Shock	IEC 60068-2-27, IEC 60068-2-6	
Moisture	IP65 Certified	

Configuration Data	
Maximum Valve Solenoid Outputs	32

Network Data	
Supported Baud Rates	COM 2: 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: 298 g, Class B: 303 g

#### IO Link field wireable

M12 straight 5 pins Female A-Coded IO Link field wireable PG-9 Cable Gland



TC05F20000000000

M12 90° Elbow 5 pins Female A-Coded IO Link field wireable PG-9 Cable Gland



TD05F20000000000



#### Accessories for IO-Link® (Class A & Class B)

Accessory Description			Order Code	
M12 Class A Compatible Cables				
		1,5 m	TA04E5MIE000071P	
	M12 Straight 4 Pin Male Single Ended Cable, Euro Color Code	5 m	TA0405MIE000071P	
	M12 90° 4 Pin Male Single Ended Cable, Euro Color Code	1,5 m	TB04E5MIE000071P	
	WIZ 90 41 III Male Single Linded Cable, Edito Color Code	5 m	TB0405MIE000071P	
	M12 Straight 4 Pin Male to Female Cable Extension	1,5 m	TC04E5MIETA0471P	
	M12 Straight 4 Pin Male to Female Cable Extension		TC0403MIETA0471P	
M12 Class B Compati	ble Cables			
M12 Straight 5 Pin Female Single Ended Cable - Unshielded	MACOUNT HIS BY Franch O'T LE FALL OF HEALTH HAR IN THE	5 m	TC0505MIE000071P	
	M12 Straight 5 Fin Female Single Ended Cable - Offshielded	10 m	TC0510MIE000071P	
			TC0505MIETA0571P	
M12 Straight 5 Pin Female to Male Double Ended C	M12 Straight 5 Pin Female to Male Double Ended Cable - Unshielded	10 m	TC0510MIETA0571P	
	Mac con F Pro Founda Cinala Foldad College Handridge	5 m	TD0505MIE000071P	
	M12 90° 5 Pin Female Single Ended Cable - Unshielded	10 m	TD0510MIE000071P	

Technical Data	Cable	M12 Field Wireable	Pin Out/Color Code
Molded Body/Insert	TPU	Polyamide	
Coupling Nut	Nickel Plated Zinc	Nickel Plated Zinc	Female View
Cable Jacket Material	PUR	NA	3 4
Cable O.D.	5mm	Accepts 3 – 6,5 mm	( 0,5 0 )
Voltage Rating	60 V	125 V	
Current Rating	4 A	4 A	2 1
Degree of Protection	IP65 (mated)	IP65 (mated)	1 ) BN
Operating Temperature	-25°C to 90°C	-20°C to 100°C	2 ) WH
Conductor Gauge	22 AWG	18 – 24 AWG	4 ) вк
Minimum Bend Radius	50 mm	NA	3 ) ви
Wire Connection	NA	Screw Terminal	5 D GN/YE



#### **580 CHARM Node**

The 580 CHARM node allows the pneumatic valve manifold to directly connect to the CHARM I/O Card (CIOC) base-plate and be controlled by DeltaV. The 580 CHARM node is connected via 2 cables to the bottom baseplate extender of the (CIOC). This provides full redundancy to the pneumatic manifold. The 580 CHARM node is commissioned via the DeltaV explorer.



Description	Replacement Part Number
580 CHARM module (node)	P580AECH1010A00



Electrical Data	Voltage	Current
Comm. Power (via baseplate extender)	6,3 V	100 mA
Valve Power (via baseplate extender)	24 V	1,07 A
Power and Communication Connector	A-coded 5 Pin M12 (male)	
LED's	Module Status and Network Status	

Operating Data					
Temperature Range (ambient)	-10°C to +50°C				
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 CHARM address and all other system settings.							
Maximum Valve-Solenoid Outputs	48 (501 Series) and 48 (502/503 Series)						

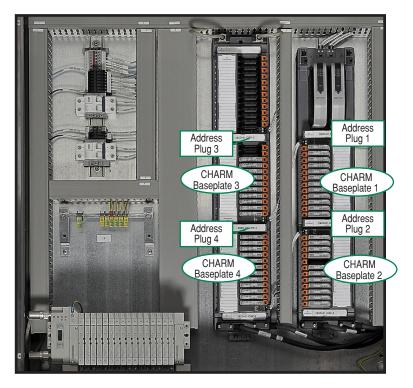
Network Data	
Redundant Power and Comm. Connectors (Primary & Secondary)	A-coded 5 Pin M12 (male)
Diagnostics	Power, short, open load conditions are monitored
DeltaV version	Compatible DeltaV series S; FHX file integrated in v13 version; download file for v11 and v12 versions

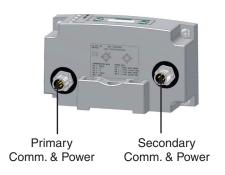
Weight			
CHARM Communication Node	336 g		



#### **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
ASSA numerits MN: P569AF516881001	Valve Power Isolator M12-Y	P599AF516881001

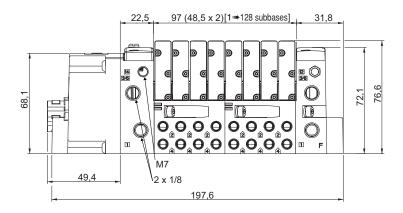


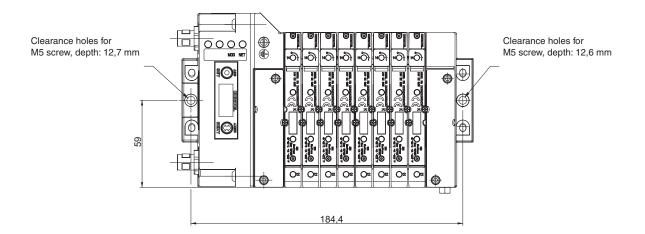
#### **Dimensions (mm)**

#### **Dimensional Drawing - 580 Fieldbus Manifold Assembly**

Configurator - CAD Files

#### 501 Series Valve Manifold Assembly with 580 Electronics





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

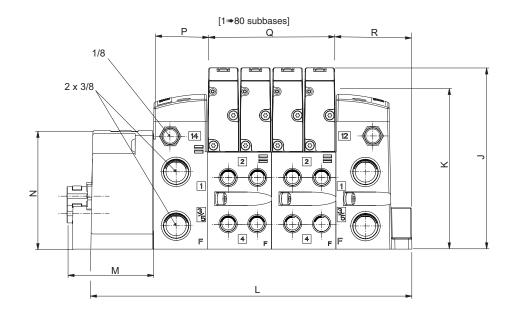


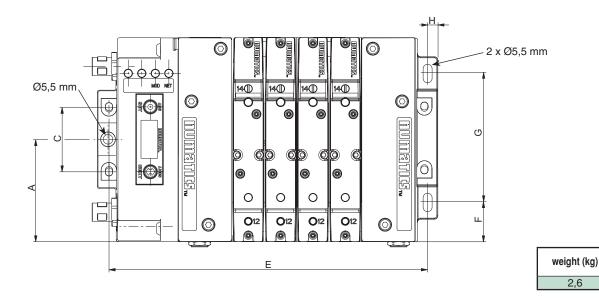
#### **Dimensions (mm/Inches)**

#### **Dimensional Drawing - 580 Fieldbus Manifold Assembly**

Configurator - CAD Files

#### 502 Series Valve Manifold Assembly with 580 Electronics





Α	С	E	F	G	Н	J	K	L	M	N	Р	Q	R
60	38	186,95	23,1	75,8	6	107,3	91,5	187,8	49,4	68,1	31,8	76	45

<sup>\* -</sup> For valve manifold dimensions refer to Valve Series product catalogs

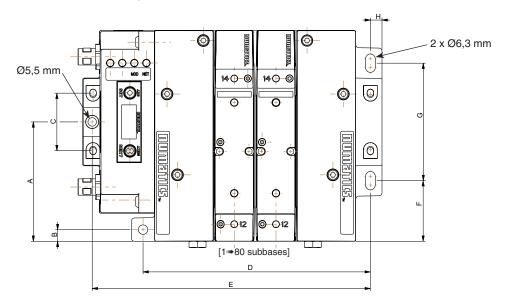


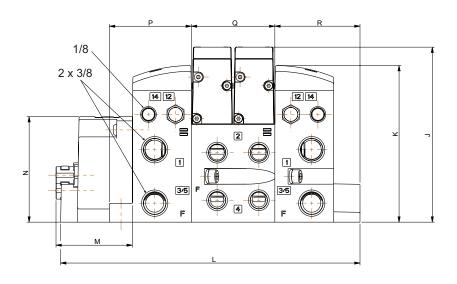
#### **Dimensions (mm/Inches)**

#### **Dimensional Drawing - 580 Fieldbus Manifold Assembly**

Configurator - CAD Files

#### 503 Series Valve Manifold Assembly with 580 Electronics



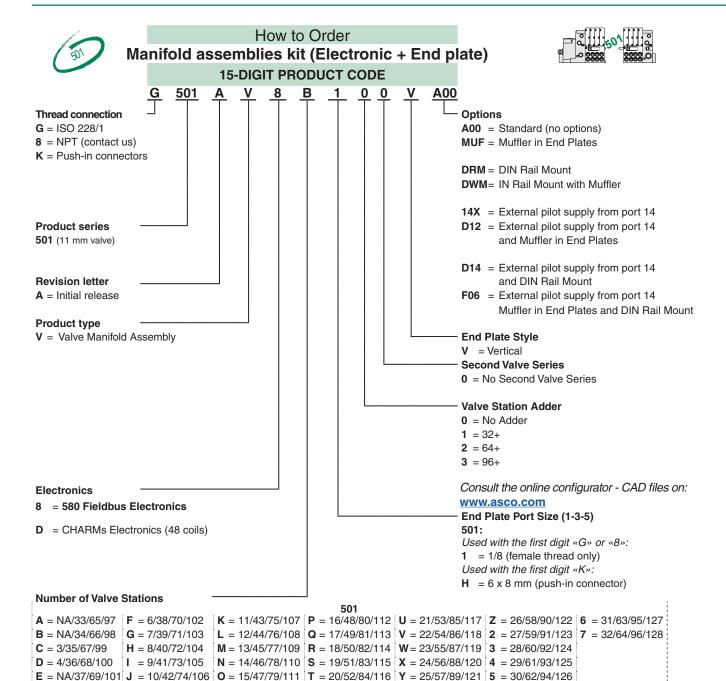


masse (kg)
2,8

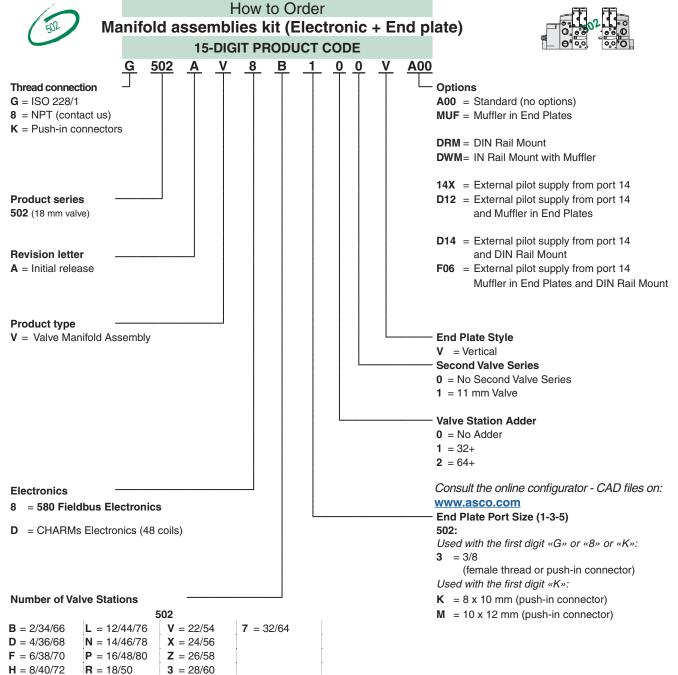
Α	В	С	D	E	F	G	Н	J	K	L	M	N	Р	Q	R
77	7.5	38	147,1	180	39,1	75,8	7,5	113	101	194	49,4	68,1	53	54	55,1

<sup>\* -</sup> For valve manifold dimensions refer to Valve Series product catalogs







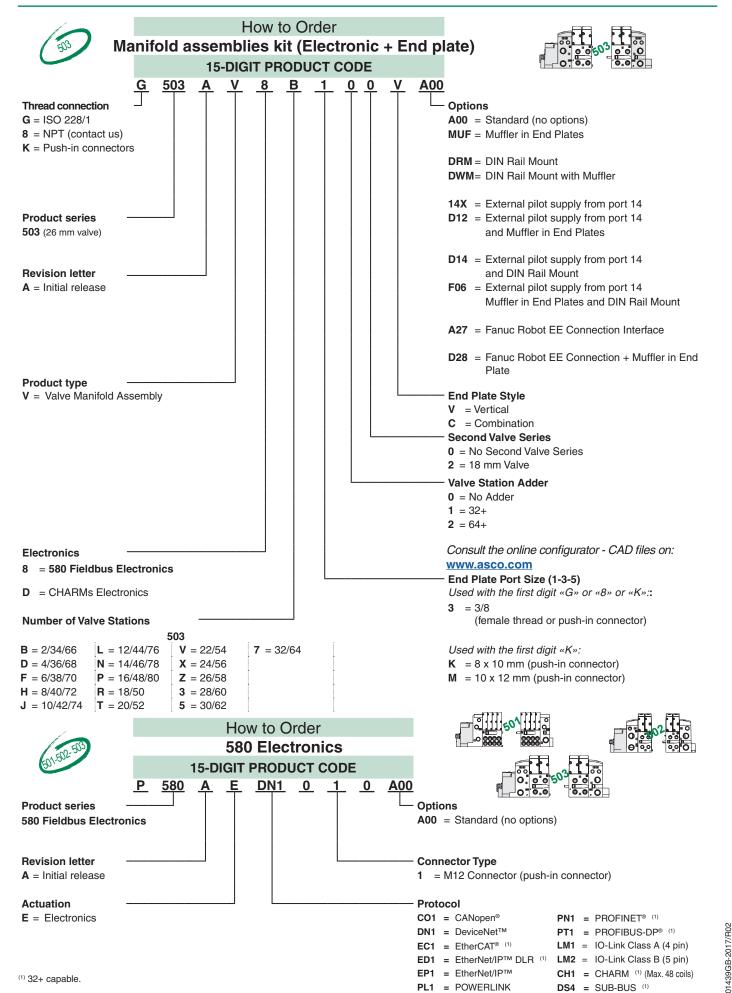


J = 10/42/74

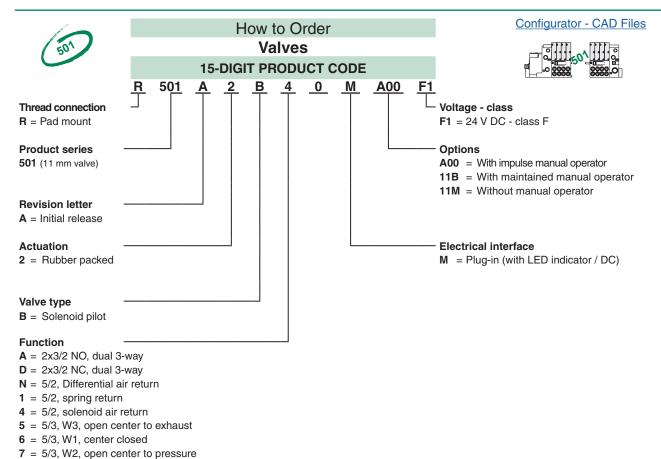
T = 20/52

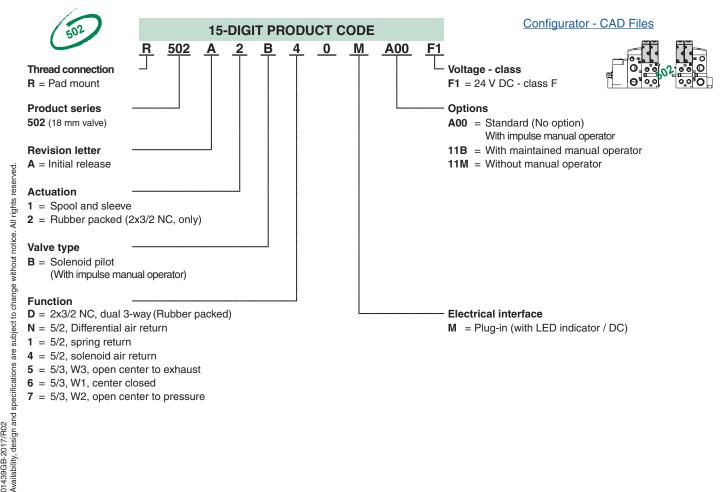
5 = 30/62





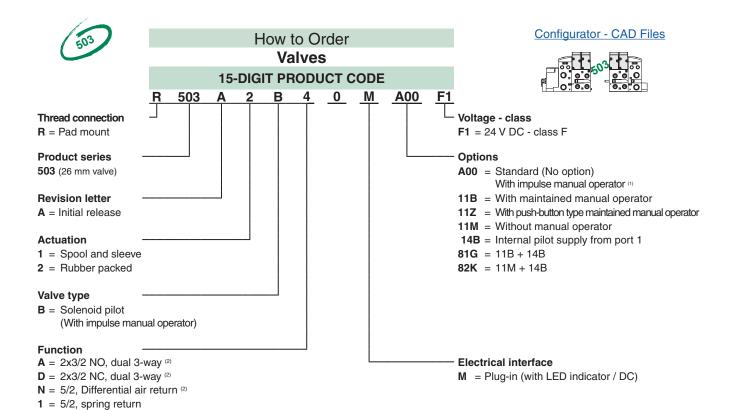








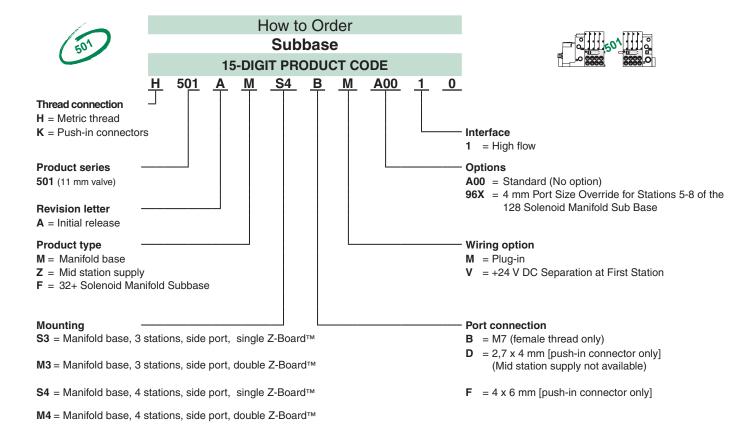
4 = 5/2, solenoid air return
5 = 5/3, W3, open center to exhaust
6 = 5/3, W1, center closed (2)
7 = 5/3, W2, open center to pressure

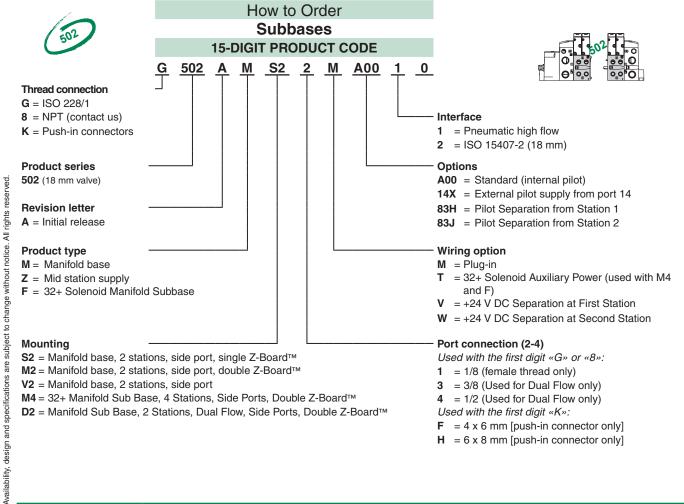


<sup>(1)</sup> Used external spool valves (internal/external supply configurated in the end plate kits). For internal piloting, contact us.

<sup>(2)</sup> Only with rubber packed version.

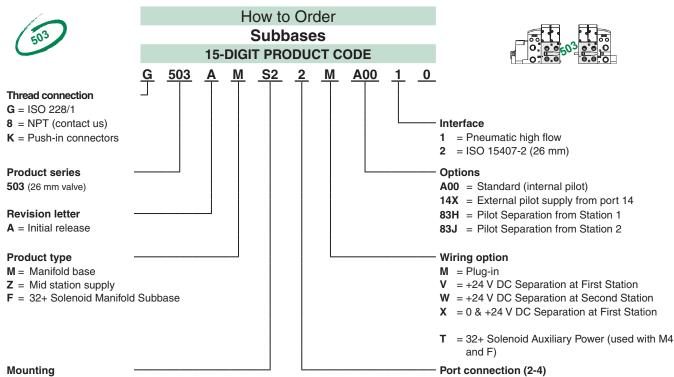






M8 = 32+ Solenoid Manifold Sub Base, 8 Stations, Side Ports, Double Z-Board™





S2 = Manifold base, 2 stations, side port, single Z-Board™

 $\mathbf{M2}$  = Manifold base, 2 stations, side port, double Z-Board<sup>TM</sup>

M4 = 32+ Manifold Sub Base, 4 Stations, Side Ports, Double Z-Board™

**D2** = Manifold Sub Base, 2 Stations, Dual Flow, Side Ports, Double Z-Board™

Used with the first digit «G» or «8»:

2 = 1/4

4 = 1/2 (Used for Dual Flow only)

Used with the first digit «K»:

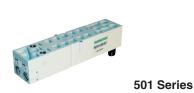
 $\mathbf{H} = 6 \times 8 \text{ mm [push-in connector only]}$ 

 $K = 8 \times 10 \text{ mm} [push-in connector only]$ 



#### Sandwich shut off block (501-502-503 Series)

- Used to shut-off pressure to the valve which is mounted above it.
- Allows easy maintenance without the need to shut-off pressure to the whole manifold. (specified for 2x3/2 NC-NC valve)

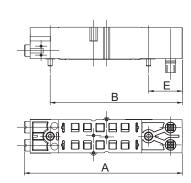


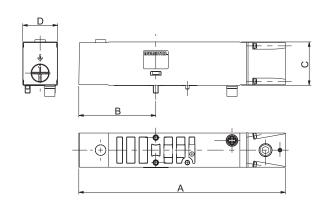










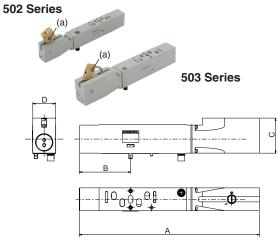


#### **Dimensions (mm)** В C D Ε Α 501 109,2 91,35 22 26,5 23,35 502 147,2 50,5 27,5 18,5 503 157,3 58,6 26,5

Usable only for internal pilot supply island

Pay attention to residual pressures

The valve(s) should not be energised during disassembly



	(12)(3)(2)(1)(4)(5)(14)
	(3)
1	

	Dimensions (mm)							
		Α	В	С	D			
İ	502	171	51	32,7	18,5			
ı	503	205,8	58,6	40,5	26			

(a) The Lock is in not included with this

	15-DIGIT PRODUCT CODE	Description	weight (kg)
501	R501AY428501001	Sandwich shut off block (double)	0,11
502	R502AY429409002	High Flow -	0,145
503	R503AY426707002	Sandwich shut off block	0,237
502	R502AY429409001	ISO 15407-2 -	0,145
503	R503AY426707001	Sandwich shut off block	0,237
502	R502AY429409004	ISO 15407-2 - Lockable shut off	0,176
503	R503AY426707003	block	0,352

#### **HOW TO ORDER**

Consult the online configurator - CAD files on: www.asco.com

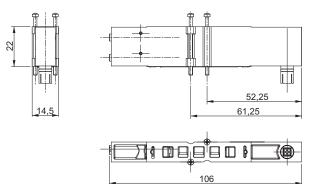


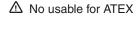
#### Sandwich speed control kit (501-502-503 Series)

#### ⚠ No usable for ATEX



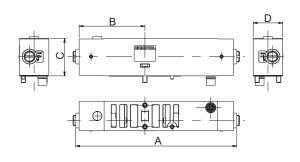
501 Series





Séries 502







14

	weight (kg)
501	0,055
502	0,138
503	0,248

Dimensions (mm)					
	Α	В	С	D	
502	124	51	27,5	18,5	
503	142	58	33	26	

	15-DIGIT PRODUCT CODE	Description	
501	R501AS428500001	Sandwich Speed Control	
502	R502AS429395002	High Flow - Sandwich Speed Control	
503	R503AS425575002		
502	R502AS429395001	ISO 15407-2 - Sandwich	
503	R503AS425575001	Speed Control	