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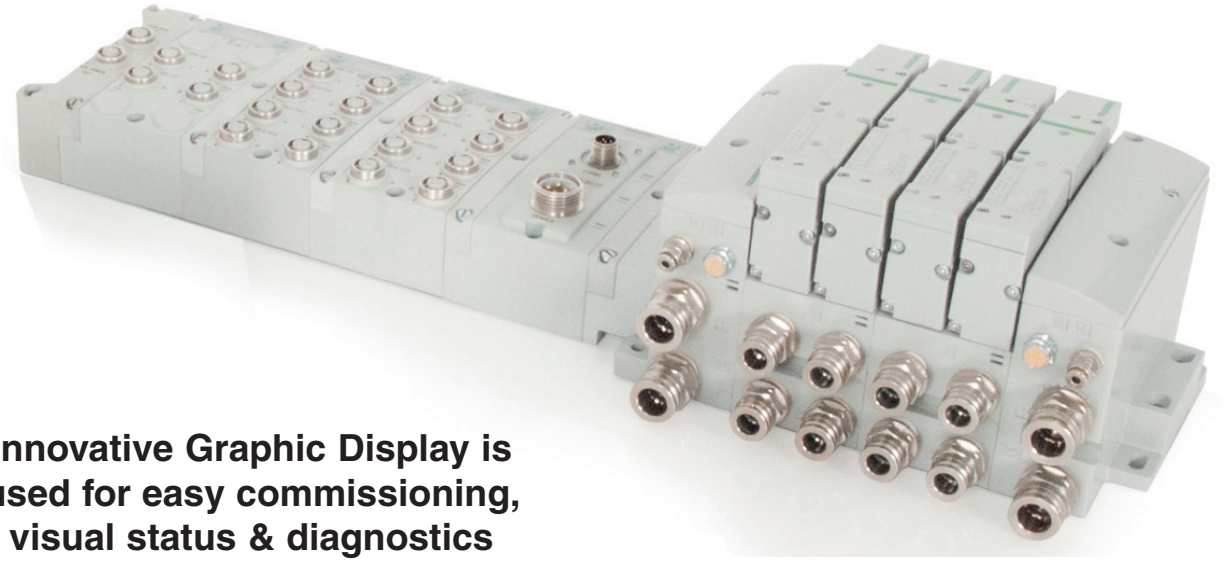
G3 Electronics and I/O

G3 Electronic displays its innovations !



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

Commissioning Capabilities

- Set network address
- Set baud rate
- Set auto or manual I/O sizes
- Set fault/idle output states
- Set brightness
- Set factory defaults

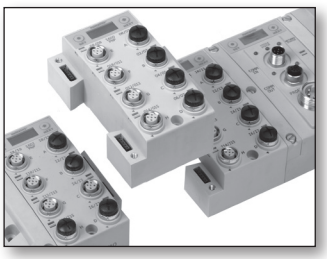
Visual Diagnostics

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

Graphic Display for configuration & diagnostics

Auto Recovery Module

Highly Distributable



Easy, Robust Connections

Benefits:

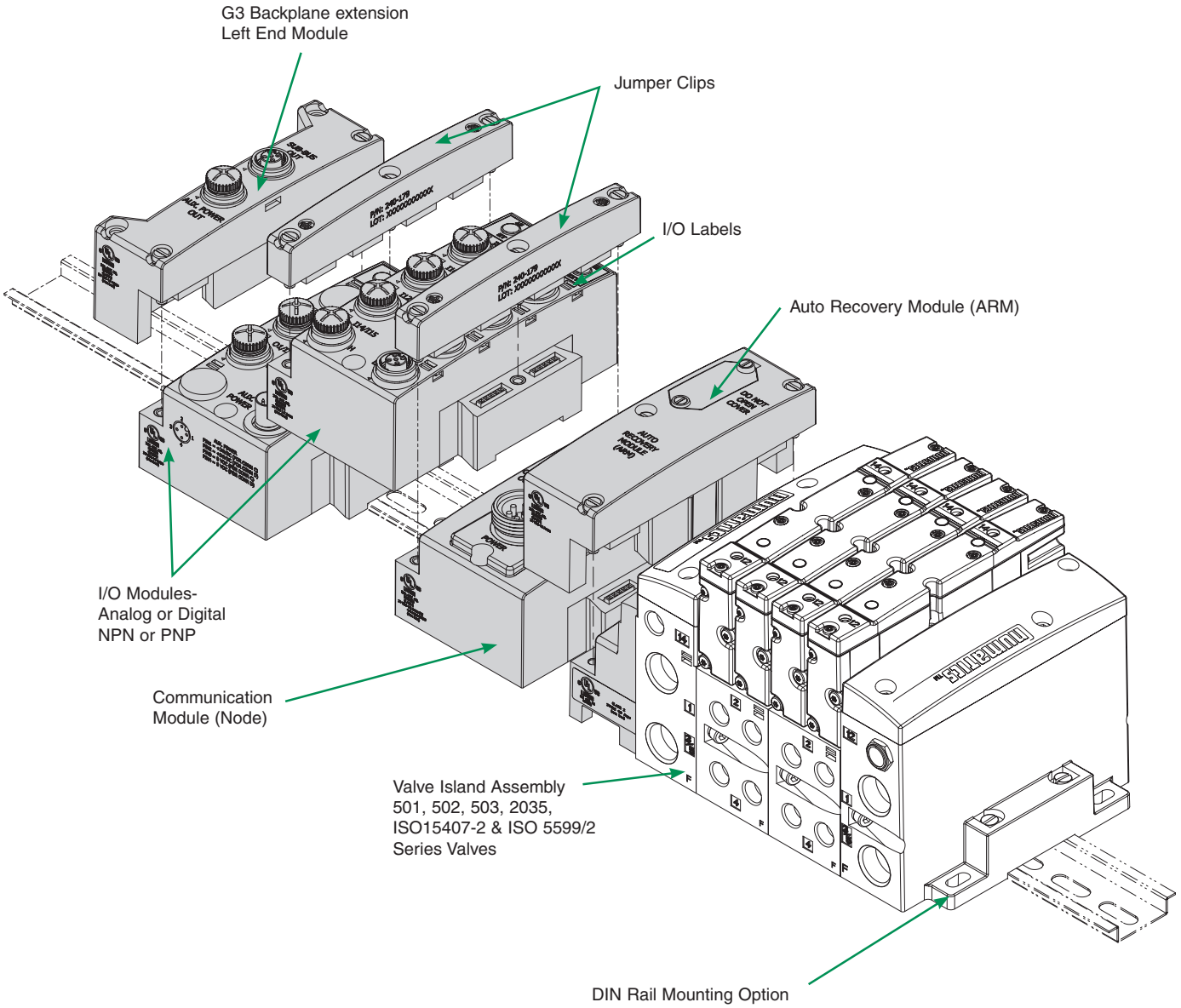
- SPEEDCON M12 connector technology allows for fast and efficient ½ turn I/O connector insertion
- Power connector scheme allows output power to be removed while inputs and communication are left active
- IP65/NEMA 4 Protection
- Auto Recovery Module (ARM) protects configuration information during a critical failure
- Novel “clip” design allows easy module removal/replacement without dismantling manifold
- Interfaces to 501, 502, 503 and 2035 valves with flow from 400 l/min up to 3800 l/min ANR
- “On line” CAD files, 85 formats

G3 Electronics Modularity

Discrete I/O

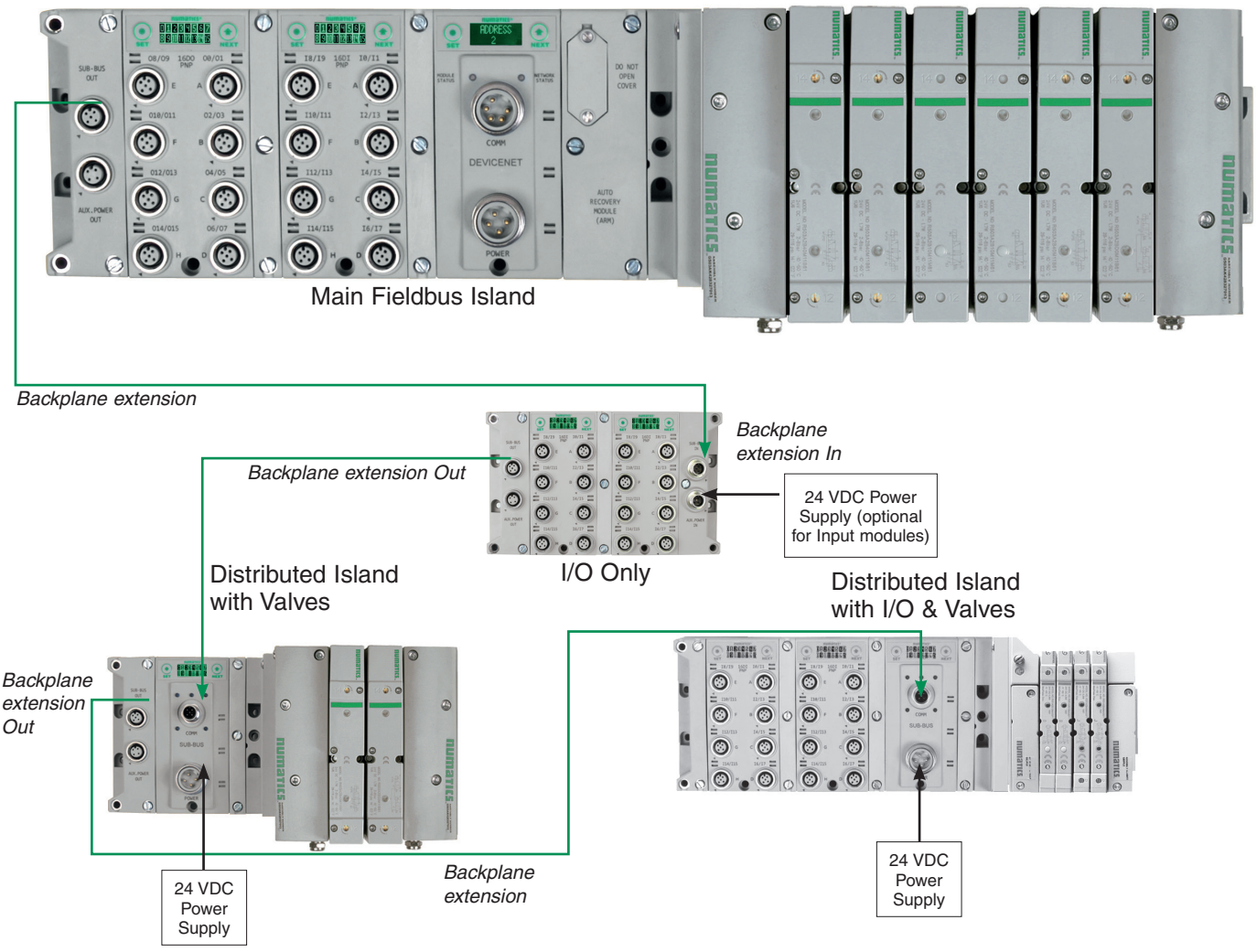
The G3 Series product line is a completely modular system. All of the G3 electronic modules plug together, via mechanical clips, allowing easy assembly and field changes. This makes the system highly distributable. Additional flexibility is incorporated because the same modules can be used in either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

The G3 electronics interfaces with the 501, 502 and 503 series but also with the highly modular Numatics generation 2000 Series, ISO 5599/2 and ISO 15407-2 Series valve lines to further enhance the modularity and flexibility of the entire system solution.



G3 Platform Distribution Options

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



Distribution Benefits

- Up to 256 Inputs / 544 Output (1200 bits) capability with one communication node!
- 16 manifolds per communication node, in line or in star
- One node supports 16 I/O modules-Analog I/O, Digital I/O (NPN & PNP)
- Unique distribution system allows system efficiency by allowing the same modules to be used in either centralized or distributed applications

G3 supported protocols :

- DeviceNet™
- EtherNet/IP™
- PROFIBUS-DP®
- PROFINET®
- POWERLINK
- Modbus TCP
- CANopen®
- DeviceNet™ w/DeviceLogix
- EtherCAT®

G2-2 supported protocols :

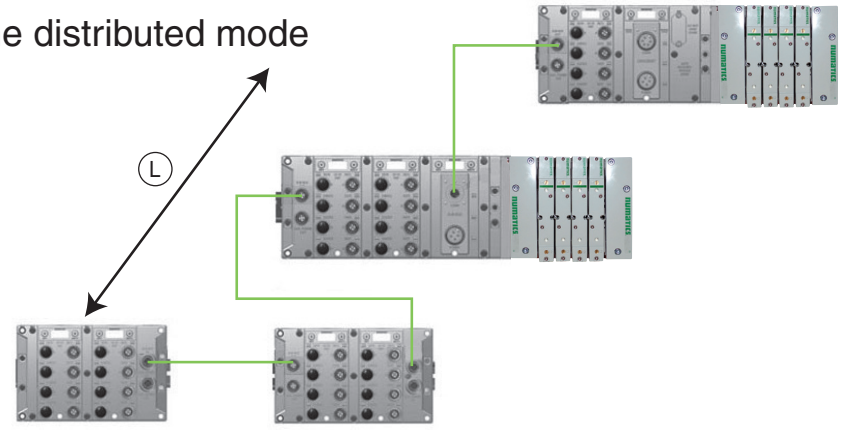
- Interbus S
- AS-interface

G3 Platform Distribution Options

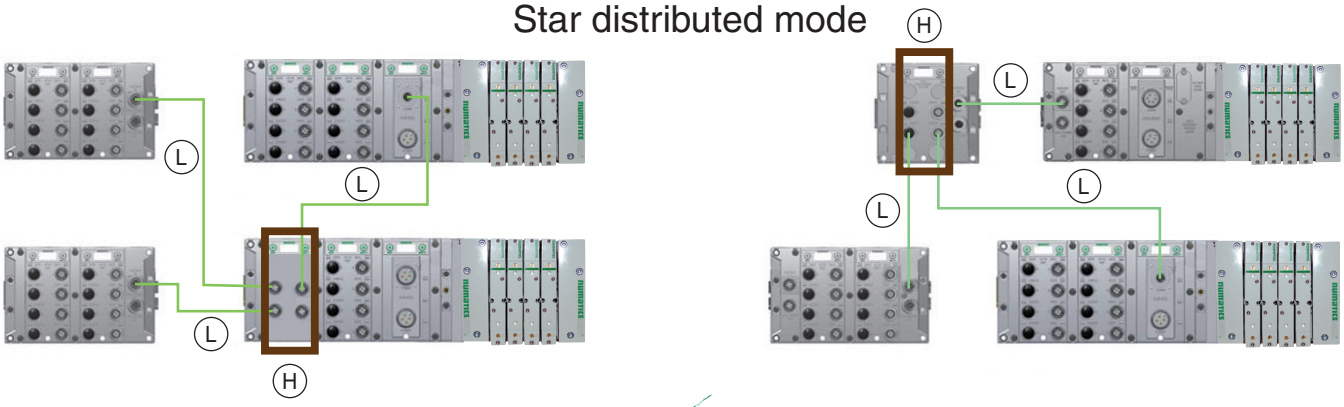
Easy, Cost Effective Solutions for Digital I/O and Valve Automation using G3 Electronics

Integrated Valve islands

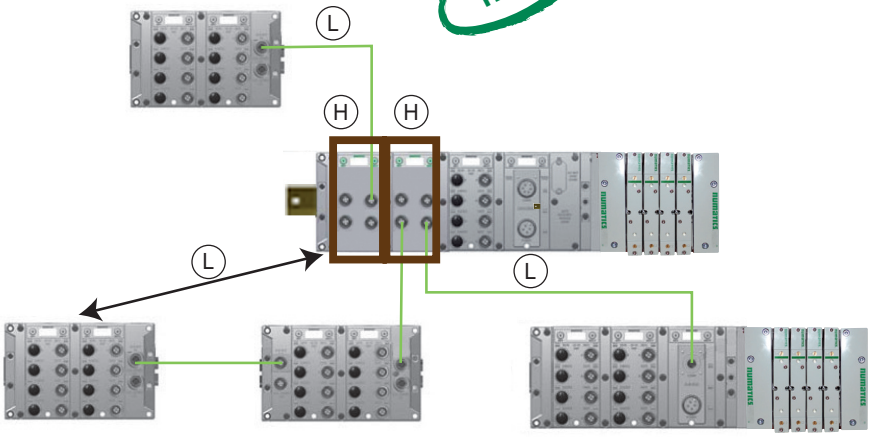
In line distributed mode



Star distributed mode



new



L Max. 30 m
H Hub

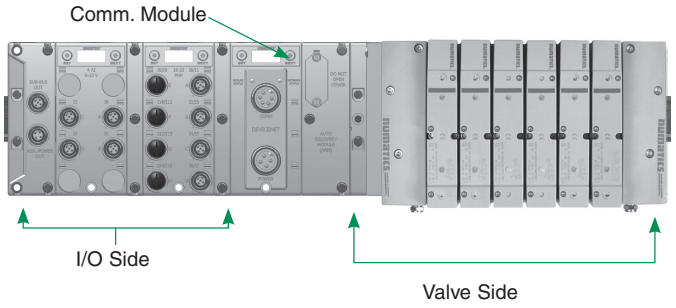
G3 Platform Distribution Options

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

Valve Side

• Up to a total of 32 valve solenoids can be driven in a manifold assembly integrated into the Main Fieldbus Island. This can be any number of single or double solenoid valves with a total number of solenoids not to exceed 32.

Typical Main Fieldbus Island



I/O Side Distribution

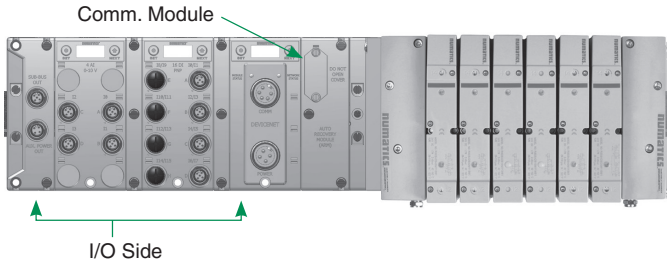
• A total of 16 modules can be integrated into the network and controlled by the main fieldbus communication module (Node)

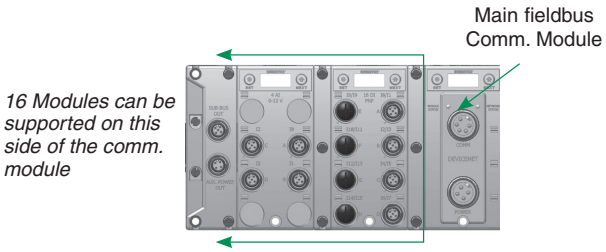
• Modules include analog and digital I/O modules providing addressing capacity for up to 256 Inputs / 544 Outputs (1200 bits) per node.

• Unique distribution system allows system efficiency by allowing the same modules to be used in either centralized or distributed applications

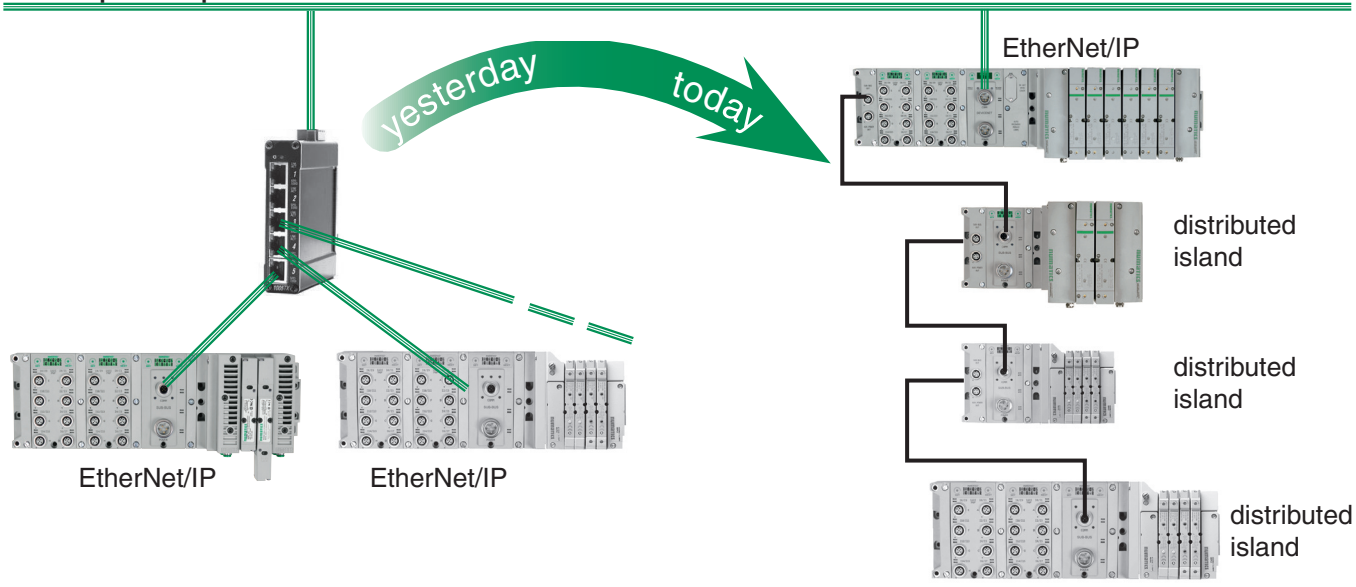
• Distribution options include Inputs only, Outputs only, I/O only, valves with Inputs, valves with Outputs and valves with I/O

• Configuration can include up to 16 of the following modules:
  - Digital I/O modules
  - Backplane extension valve modules
  - Analog I/O modules





Example of platform distribution



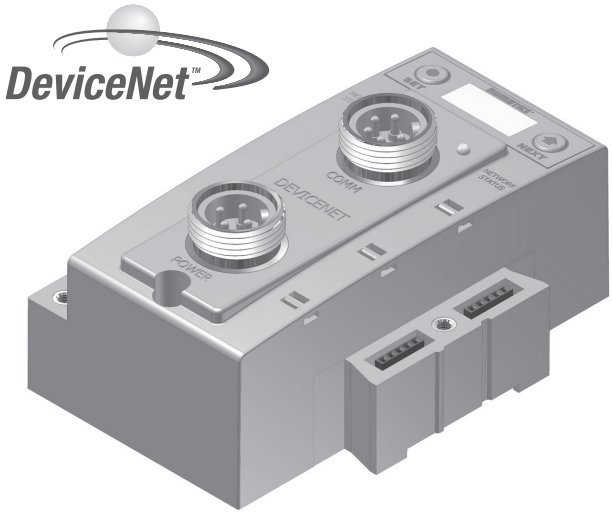
DeviceNet™

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 DeviceNet™ nodes have an integrated graphic display and are capable of addressing combinations of up to 256 inputs / 544 outputs.

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

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



DESCRIPTION	REPLACEMENT PART NUMBER
DeviceNet communications module (node)	**240-180**

DeviceNet™

COMMMALE

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 (valves & out)
Pin 2 = +24 V DC (node & in)
Pin 3 = 0 V DC (node & in)
Pin 4 = 0 V DC (valves & out)

Technical Data

ELECTRICAL DATA	VOLTAGE	CURRENT
Node Power at Max. Brightness	24 V DC +/- 10%	0.070 Amps
BUS Power	11-25 V DC	0.025 Amps
Valves & Discrete I/O	24 V DC +/- 10%	8 Amps Maximum
Power Connector	Single key 4 pin 7/8" MINI type (male)	
Communication Connector	Single key 5 pin 7/8" MINI type (male)	
LED's	Module Status and Network Status	
OPERATING DATA		
Temperature Range (ambient)	-23° to +50°C	
Humidity	95% relative humidity, non-condensing	
Vibration / Shock	IEC 60068-2-27, IEC 60068-2-6	
Moisture Protection	IP65, IP67 (with appropriate assembly and termination)	
CONFIGURATION DATA		
Graphic Display	Display used for setting Node Address, Baud Rate, Fault / Idle Actions, DeviceNet QuickConnect, Diagnostics 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 256 inputs / 544 outputs (1200 bits)	

NETWORK DATA	
Supported Baud Rates	125K Baud, 250K Baud, 500K Baud, with Auto-Baud detection
Supported Connection Type	Polled, Cyclic, Change of State (COS) and combination Message Capability
Bus Connector	Single key 5 pin 7/8" MINI type (male)
Diagnostics	Power, short, open load conditions and module health are monitored
Special Features	Supports Auto-Device Replacement (ADR) and fail-safe device settings
WEIGHT	
DeviceNet Communication Module	252 g

DeviceNet™ bus connection

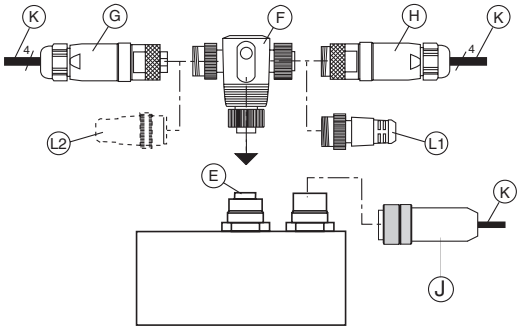
the front panel of the communication module for DeviceNet™ is equipped with a 5 pin 7/8 - 16 UN male socket (E).

The bus can be connected in the two following ways:

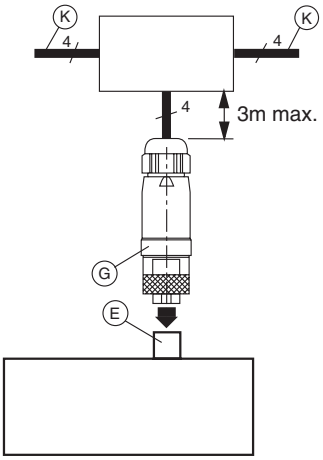
- directly to the module with a T-connector;
- with a straight connector, cable (max. length: 3 m) and a DeviceNet distributor box.

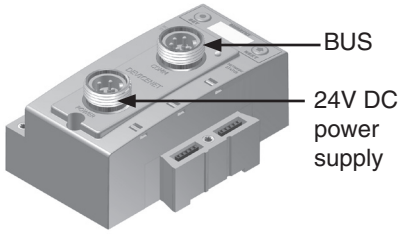
The modules on either side of the system must be provided with terminating resistors (L1 or L2).

■ Wiring with T-connector



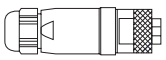
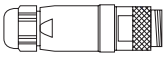
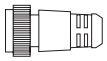
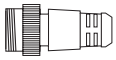
■ Connection with DeviceNet™ distributor box (X)





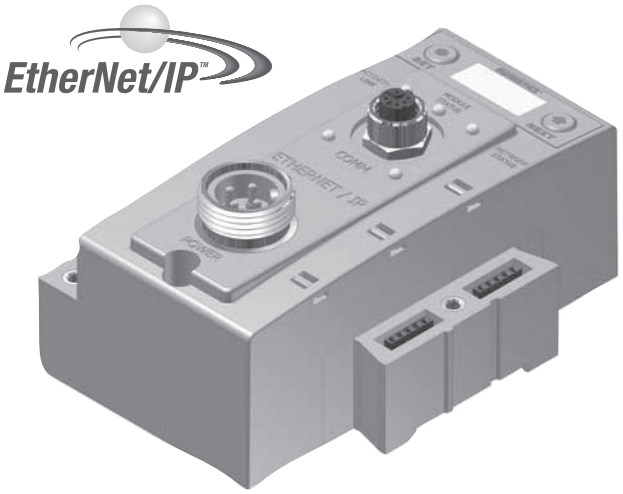
Accessories for DeviceNet™

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

	Accessory	Description	Order Code
G		5 pin straight 7/8-16 UN female connector	**88161930**
H		5 pin straight 7/8-16 UN male connector	**88161931**
F		T-connector 7/8-16 UN, 5 male / female / female pins	**88161932**
L1		Terminating resistor female plug 120 ohms	**88161933**
L2		Terminating resistor male plug 120 ohms	**88161934**
J		4 pin straight female cable connector 7/8”	**230-1003**
		4 pin elbow female cable connector 7/8”	**230-1001**
		4 pin elbow female cable connector 7/8” with 9,15 m cable  1 = braun 2 = white 3 = blue 4 = black	**230-950**

(K) Cable to be ordered separately.

EtherNet/IP™



Ethernet used throughout the world to network millions of PC's has now evolved into a viable industrial network. Ethernet is an open architecture high-level communication network that meets the demands of today's industrial applications requiring high-speed (10/100 Mbit/s), high-throughput and flexibility. Various application layers for this protocol including EtherNet/IP™. Additionally, Ethernet 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' G3 Ethernet nodes have an integrated graphic display and are capable of addressing combinations of up to 256 inputs / 544 outputs.

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

More information about EtherNet/IP™ and the ODVA can be obtained from the following WEB site: www.odva.org

DESCRIPTION	REPLACEMENT PART NUMBER
EtherNet/IP™ communications module (node)	**240-181**

Ethernet/IP™

COMM FEMALE

Pin 1 = TX+
Pin 2 = RX+
Pin 3 = TX-
Pin 4 = RX-

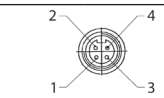
POWER MALE

Pin 1 = +24 V DC (valves & out)
Pin 2 = +24 V DC (node & in)
Pin 3 = 0 V DC (node & in)
Pin 4 = 0 V DC (valves & out)

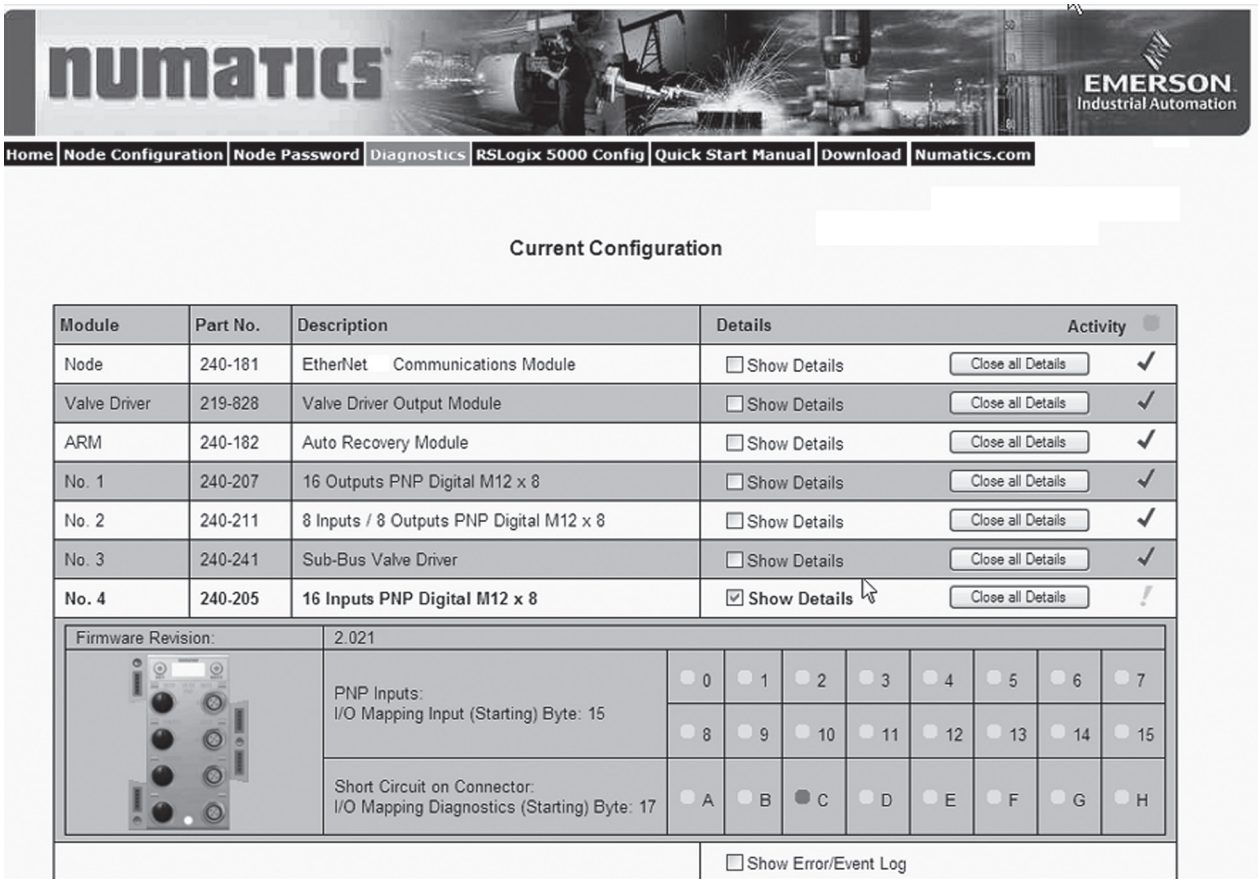
Technical Data

ELECTRICAL DATA	VOLTAGE	CURRENT
Node Power at Max. Brightness	24 V DC +/- 10%	91 mA
Valves & Discrete I/O	24 V DC +/- 10%	8 A maximum
Power Connector	Single key 4 pin 7/8" MINI type (male)	
Communication Connector	One D-coded 4 pin M12 type (female)	
LED's	Module Status, Network Status and Activity/Link	
OPERATING DATA		
Temperature Range (ambient)	-23° to +50°C	
Humidity	95% relative humidity, non-condensing	
Vibration / Shock	IEC 60068-2-27, IEC 60068-2-6	
Moisture Protection	IP65, IP67 (with appropriate assembly and termination)	
CONFIGURATION DATA		
Graphic Display	Display used for setting IP Address, Subnet mask, Fault / Idle Actions, DHCP / BootP and all other system settings.	
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system setting in the event of total or partial system failure	
Maximum Valve-Solenoid Outputs	32	
Maximum Addressable I/O Points	Various combinations of 256 inputs / 544 outputs (1200 bits)	
NETWORK DATA		
Supported Baud Rates	10 Mbit / 100 Mbit	
Bus Connector	D-coded 4 pin M12 type (female)	
Diagnostics	Power, short, open load conditions and module health are monitored	
Special Features	Integrated web server and fail-safe device settings	
WEIGHT		
Ethernet Communication Module	255 g	

Accessories for EtherNet/IP™

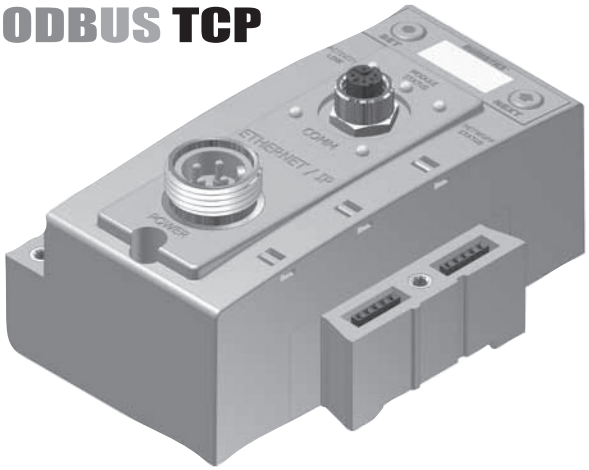
Accessory	Description		Order Code
	M12 Straight 4 Pin Male D-Coded to Male RJ45 Cable - Shielded	5m	**QA0405MK0VA04000**
		10m	**QA0410MK0VA04000**
	M12 Straight 4 Pin Male D-Coded Field Wireable Connector PG 9 Cable Gland – Screw Terminal		**QA04F20000000000**
	4 pin straight female cable connector 7/8”		**230-1003**
	4 pin elbow female cable connector 7/8”		**230-1001**
	4 pin elbow female cable connector 7/8” with 9,15 m cable  1 = braun 2 = white 3 = blue 4 = black		**230-950**

Server web page



Modbus TCP

MODBUS TCP



Ethernet used throughout the world to network millions of PC's has now evolved into a viable industrial network. Ethernet is an open architecture high-level communication network that meets the demands of today's industrial applications requiring high-speed (10/100 Mbit/s), high-throughput and flexibility. Various application layers for this protocol including Modbus TCP. Additionally, Ethernet 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' G3 Ethernet nodes have an integrated graphic display and are capable of addressing combinations of up to 256 inputs / 544 outputs.

The G3 Modbus TCP nodes have been tested and approved for conformance by the ODVA.

More information about Modbus TCP and the ODVA can be obtained from the following WEB site: www.odva.org

DESCRIPTION	REPLACEMENT PART NUMBER
Modbus TCP communications module (node)	**240-292**

Modbus TCP

COMM  FEMALE

Pin 1 = TX+
Pin 2 = RX+
Pin 3 = TX-
Pin 4 = RX-

POWER  MALE

Pin 1 = +24 V DC (valves & out)
Pin 2 = +24 V DC (node & in)
Pin 3 = 0 V DC (node & in)
Pin 4 = 0 V DC (valves & out)

Technical Data

ELECTRICAL DATA	VOLTAGE	CURRENT
Node Power at Max. Brightness	24 V DC +/- 10%	91 mA
Valves & Discrete I/O	24 V DC +/- 10%	8 A maximum
Power Connector	Single key 4 pin 7/8" MINI type (male)	
Communication Connector	One D-coded 4 pin M12 type (female)	
LED's	Module Status, Network Status and Activity/Link	
OPERATING DATA		
Temperature Range (ambient)	-23° to +50°C	
Humidity	95% relative humidity, non-condensing	
Vibration / Shock	IEC 60068-2-27, IEC 60068-2-6	
Moisture Protection	IP65, IP67 (with appropriate assembly and termination)	
CONFIGURATION DATA		
Graphic Display	Display used for setting IP Address, Subnet mask, Fault / Idle Actions, DHCP / BootP and all other system settings.	
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system setting in the event of total or partial system failure	
Maximum Valve-Solenoid Outputs	32	
Maximum Addressable I/O Points	Various combinations of 256 inputs / 544 outputs (1200 bits)	

NETWORK DATA	
Supported Baud Rates	10 Mbit / 100 Mbit
Bus Connector	D-coded 4 pin M12 type (female)
Diagnostics	Power, short, open load conditions and module health are monitored
Special Features	Integrated web server and fail-safe device settings
WEIGHT	
Ethernet Communication Module	255 g

Accessories for Modbus TCP

Accessory	Description		Order Code
	M12 Straight 4 Pin Male D-Coded to Male RJ45 network Cable - Shielded supply 24 V DC	5m	**QA0405MK0VA04000**
		10m	**QA0410MK0VA04000**
	M12 Straight 4 Pin Male D-Coded Field Wireable network Connector PG 9 Cable Gland – Screw Terminal		**QA04F20000000000**
	4 pin straight female cable network connector 7/8” supply 24 V DC		**230-1003**
	4 pin elbow female cable network connector 7/8” supply 24 V DC		**230-1001**
	4 pin elbow female cable network connector 7/8” with 9,15 m cable supply 24 V DC  1 = braun 2 = white 3 = blue 4 = black		**230-950**

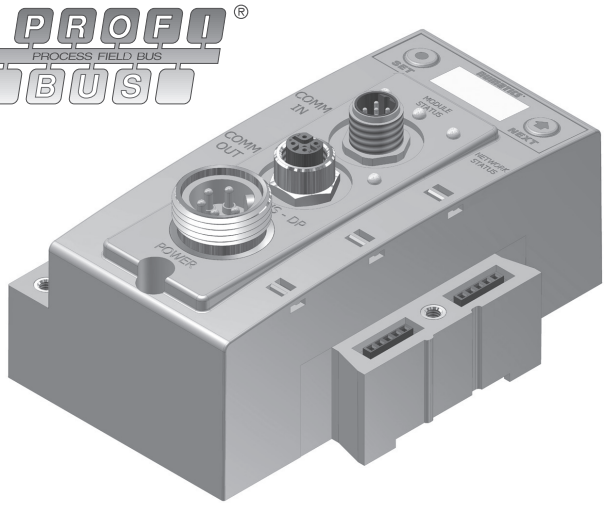
PROFIBUS-DP®

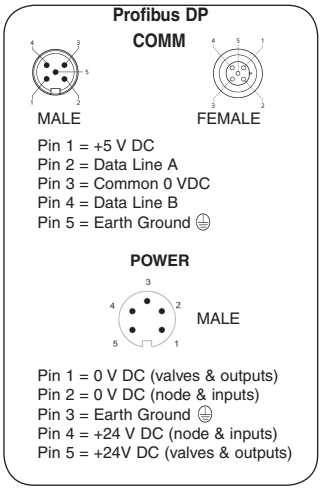
PROFIBUS-DP® is a vendor-independent, open fieldbus protocol designed for communication between automation control systems and distributed I/O at the device level.

Numatics' G3 PROFIBUS-DP® nodes have an integrated graphic display and are capable of addressing combinations of up to 256 inputs / 544 outputs.

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

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





DESCRIPTION	REPLACEMENT PART NUMBER
PROFIBUS-DP® communications module (node) DPV0/DPV1	**240-239**

Technical Data

ELECTRICAL DATA	VOLTAGE	CURRENT
Node Power at Max. Brightness	24 V DC +/- 10%	94 mA
Valves & Discrete I/O	24 V DC +/- 10%	8 A maximum
Power Connector	Single key 5 pin 7/8" MINI type (male)	
Communication Connector	Single reverse key (B-Coded) 5 pin M12 type (1 male and 1 female)	
LED's	Module Status and Network Status	

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

CONFIGURATION DATA	
Graphic Display	Display used for setting Node Address, Baud Rate, Fault / Idle Actions, and all other system settings.
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system setting in the event of total or partial system failure
Maximum Valve-Solenoid Outputs	32
Maximum Addressable I/O Points	Various combinations of 256 inputs / 544 outputs (1200 bits)

NETWORK DATA	
Supported Baud Rates	Auto-Baud from 9.6k to 12M Baud
Bus Connector	Single reverse key (B-Coded) 5 pin M12 type (1 male and 1 female)
Diagnostics	Power, short, open load conditions and module health are monitored
Special Features	Supports Class 2 PROFIBUS-DP master with auto-configuration and fail-safe device settings

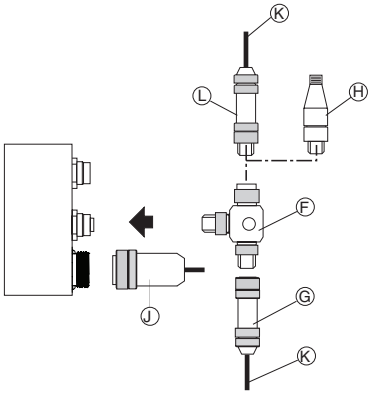
WEIGHT	
PROFIBUS-DP Communication Module	227 g

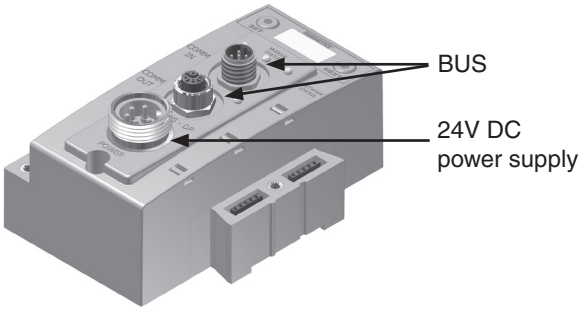
PROFIBUS-DP® bus connection

The front panel of the communication module for Profibus-DP® is equipped with:
- a 5 pin male 7/8” 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

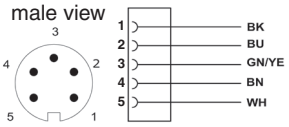
Wiring with T-connector





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**
G		M12-B connector , 5 female pins - for cable dia. 6 - 8 mm (Profibus 12Mb max)	**88100713**
L		M12-B connector , 5 male pins - for cable dia. 6 - 8 mm (Profibus 12Mb max)	**88100714**
H		Terminating resistor M12-B - male plug	**88100716**
J		5 pin straight female cable connector 7/8”	**MC05F90000000000**
		5 pin elbow female cable connector 7/8”	**MD05F20000000000**
		5 pin elbow female cable connector 7/8” with 10 m cable 	**MD0510MAG0000000**
		Dust cover - M12 female	**88157773**

(K) Cable to be ordered separately.

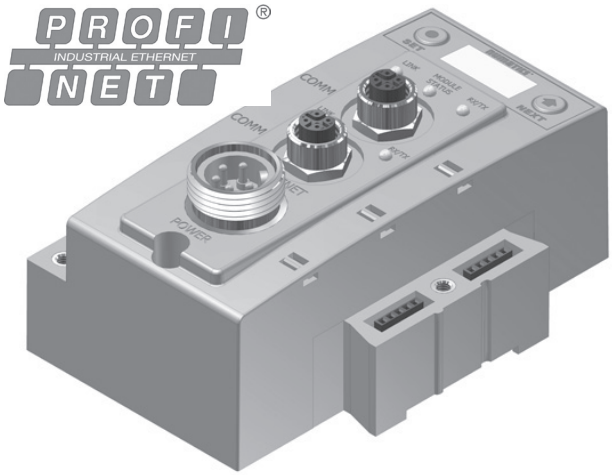
PROFINET®

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

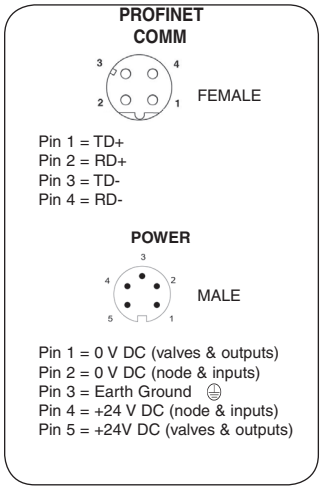
Numatics' G3 PROFINET® IO (PROFINET RT) nodes have an integrated graphic display and are capable of addressing combinations of up to 256 inputs / 544 outputs. Additionally, PROFINET® technology can integrate an on-board Web server, which can make the node readily accessible for configuration, testing and even retrieval of technical documentation.

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

More information regarding PROFINET® can be obtained from the following WEB site:
www.profinet.com
Remark: Compatibility with MRP functionnalities.



2 switches port connection



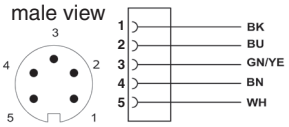
DESCRIPTION	REPLACEMENT PART NUMBER
PROFINET® communications module (node)	**240-240**

Technical Data

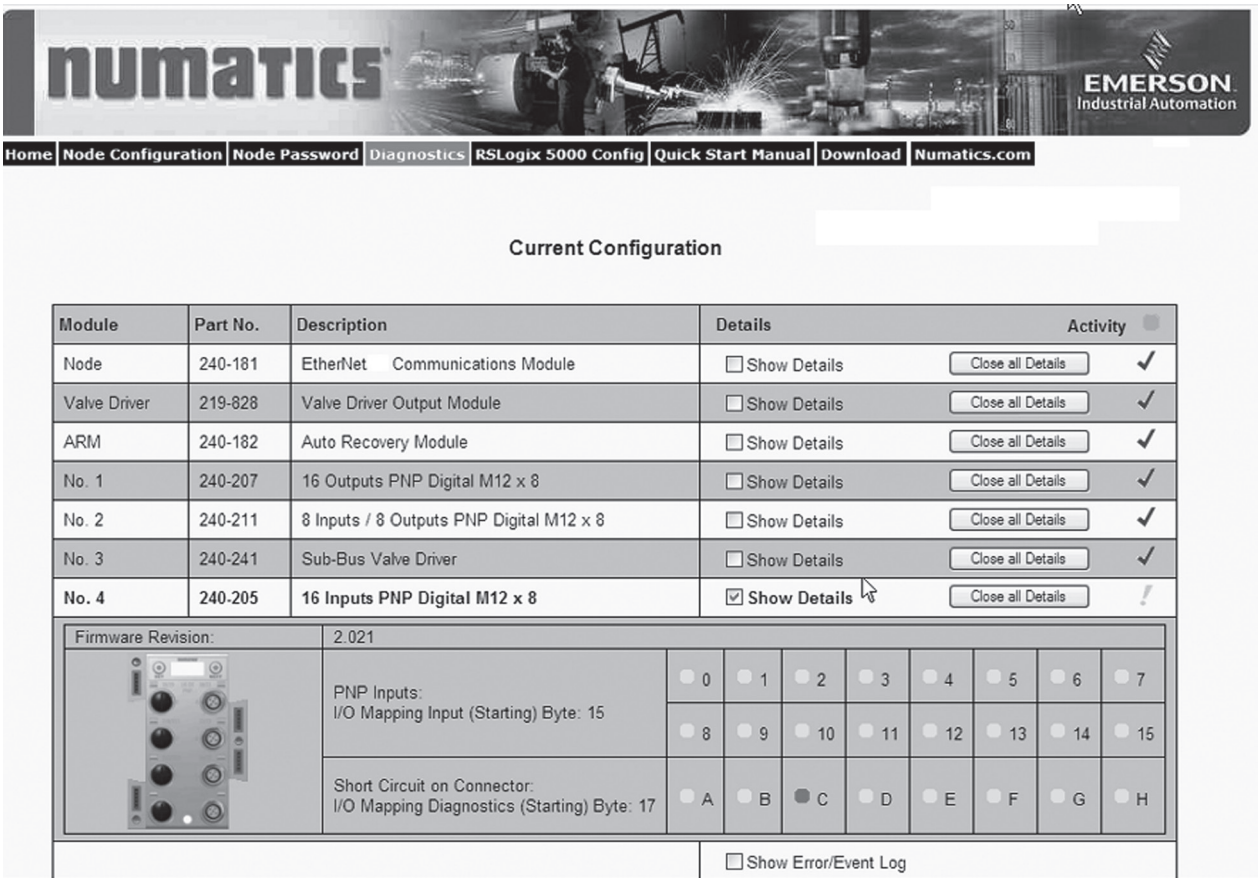
ELECTRICAL DATA	VOLTAGE	CURRENT
Node Power at Max. Brightness	24 V DC +/- 10%	
Valves & Discrete I/O	24 V DC +/- 10%	8 A maximum
Power Connector	Single key 5 pin 7/8" MINI type (male)	
Communication Connector	Two D-coded 4 pin M12 type (female)	
LED's	Module Status, Network Status and Activity/Link	
OPERATING DATA		
Temperature Range (ambient)	-23° to +50°C	
Humidity	95% relative humidity, non-condensing	
Vibration / Shock	IEC 60068-2-27, IEC 60068-2-6	
Moisture Protection	IP65, IP67 (with appropriate assembly and termination)	
CONFIGURATION DATA		
Graphic Display	Display used for setting IP Address, Subnet Mask, Fault / Idle Actions, and all other system settings.	
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system setting in the event of total or partial system failure.	
Maximum Valve-Solenoid Outputs	32	
Maximum Addressable I/O Points	Various combinations of 256 inputs / 544 outputs (1200 bits)	

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	
PROFINET Communication Module	Consult Factory

Accessories for PROFINET®

Accessory	Description		Order Code
	M12 Straight 4 Pin Male D-Coded to Male RJ45 Cable - Shielded supply 24 V DC	5m	QA0405MK0VA04000
		10m	QA0410MK0VA04000
	M12 Straight 4 Pin Male D-Coded Field Wireable Connector PG 9 Cable Gland – Screw Terminal		QA04F20000000000
	5 pin straight female cable connector 7/8", supply 24 V DC		MC05F90000000000
	5 pin elbow female cable connector 7/8", supply 24 V DC		MD05F20000000000
	5 pin elbow female cable connector 7/8" with 10 m cable Euro colour code supply 24 V DC		MD0510MAG0000000

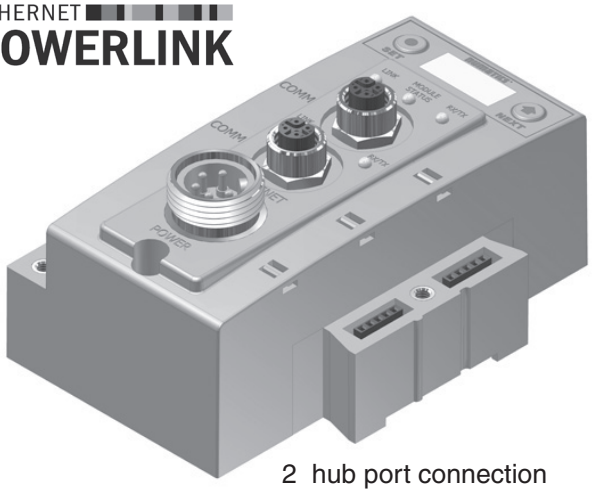
Server web page



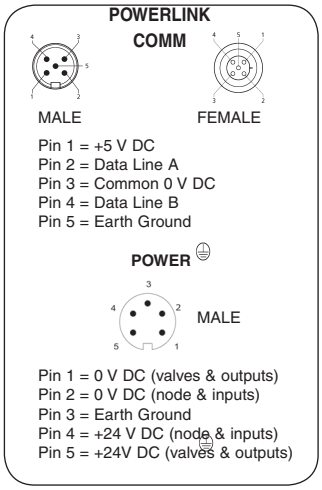
POWERLINK

ETHERNET POWERLINK

Ethernet POWERLINK is a 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 256 Inputs / 544 Outputs.
The G3 Ethernet POWERLINK nodes have been designed and tested to conform to the Ethernet POWERLINK specifications available at EPSG group (Ethernet Powerlink Standardization Group). Additionally, POWERLINK technology can integrate an on-board Web server, which can make the node readily accessible for configuration, testing and even retrieval of technical documentation.
The certification process ensures interoperability for all Ethernet POWERLINK devices and compatible with B&R systems.
More information regarding Ethernet POWERLINK can be obtained from the following WEB site:
www.ethernet-powerlink.org



2 hub port connection



DESCRIPTION	REPLACEMENT PART NUMBER
POWERLINK communications module (node)	**240-309**

Technical Data

ELECTRICAL DATA	VOLTAGE	CURRENT
Node Power at Max. Brightness	24 V DC +/- 10%	94 mA
Valves & Discrete I/O	24 V DC +/- 10%	8 A maximum
Power Connector	Single key 5 pin 7/8" MINI type (male)	
Communication Connector	Two D-coded 4 pin M12 type (female)	
LED's	Module Status and Network Status	

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

CONFIGURATION DATA	
Graphic Display	Display used for setting Node Address, Baud Rate, Fault / Idle Actions, and all other system settings.
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system setting in the event of total or partial system failure
Maximum Valve-Solenoid Outputs	32
Maximum Addressable I/O Points	Various combinations of 256 inputs / 544 outputs (1200 bits)

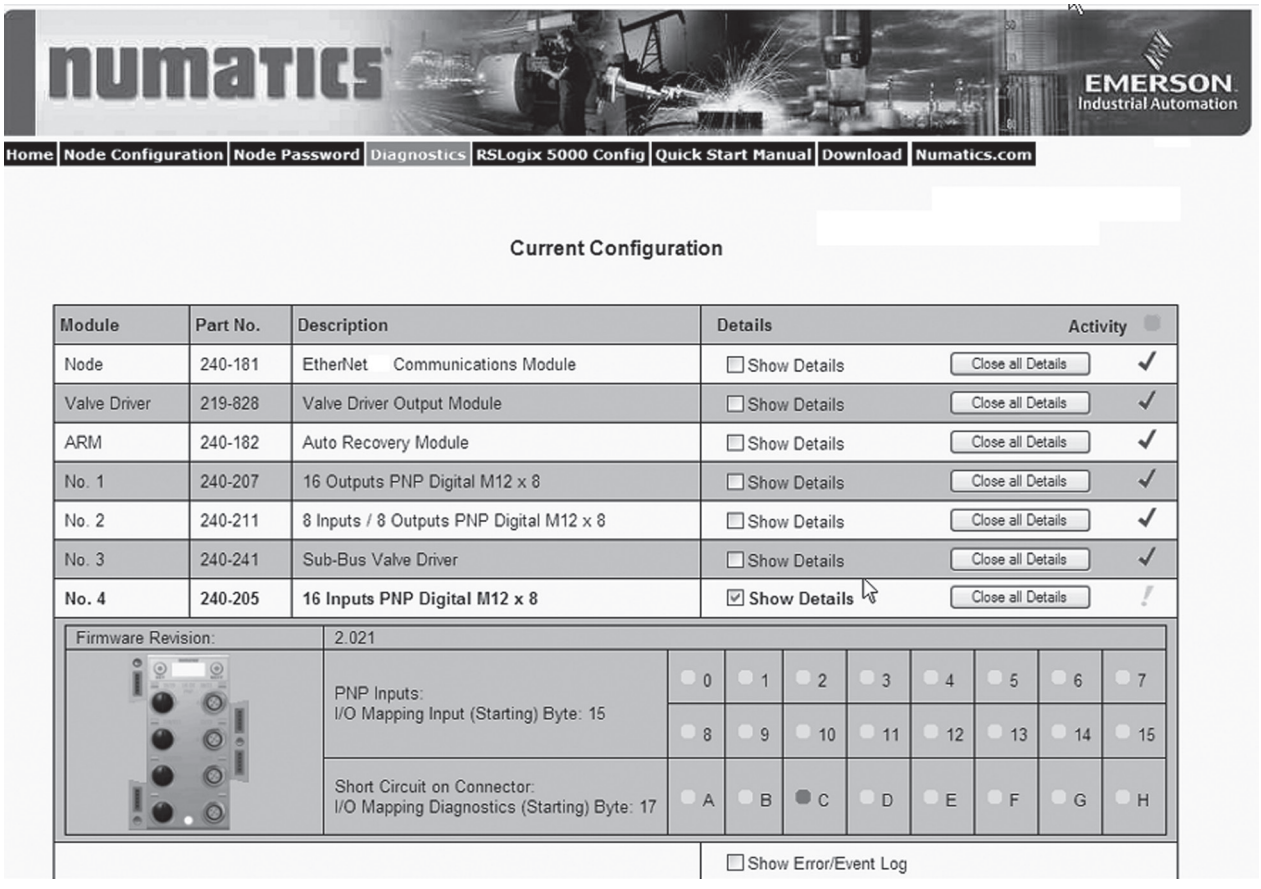
NETWORK DATA	
Supported Baud Rates	
Bus Connector	Single reverse key (B-Coded) 5 pin M12 type (1 male and 1 female)
Diagnostics	Power, short, open load conditions and module health are monitored
Special Features	

WEIGHT	
POWERLINK Communication Module	227 g

Accessories for POWERLINK

Accessory	Description		Order Code
	M12 Straight 4 Pin Male D-Coded to Male RJ45 Cable - Shielded	5m	QA0405MK0VA04000
		10m	QA0410MK0VA04000
	M12 Straight 4 Pin Male D-Coded Field Wireable Connector PG 9 Cable Gland – Screw Terminal		QA04F20000000000
	5 pin straight female cable connector 7/8”		MC05F90000000000
	5 pin elbow female cable connector 7/8”		MD05F20000000000
	5 pin elbow female cable connector 7/8” with 10 m cable Euro colour code	male view 3 4 2 5 1 1 BK 2 BU 3 GN/YE 4 BN 5 WH	MD0510MAG0000000

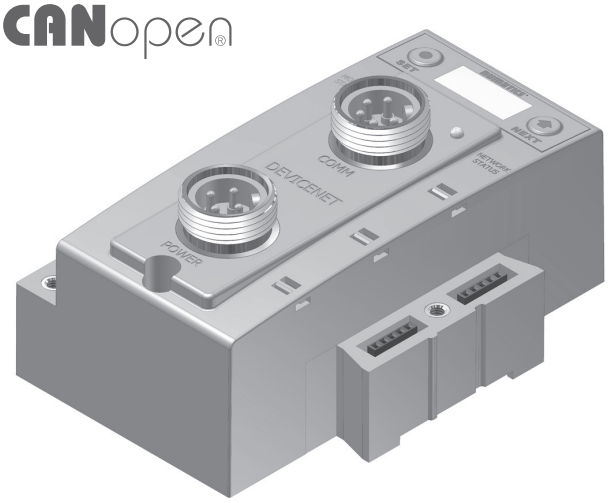
Server web page



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 CANopen® nodes have an integrated graphic display and are capable of addressing combinations of up to 256 inputs / 256 outputs.

More information regarding this organization can be found at: www.can-cia.org



DESCRIPTION	REPLACEMENT PART NUMBER
CANopen® communications module (node)	**240-291**

CANopen®

COMM — 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 (valves & out)
Pin 2 = +24 V DC (node & in)
Pin 3 = 0 V DC (node & in)
Pin 4 = 0 V DC (valves & out)

Technical Data

ELECTRICAL DATA	VOLTAGE	CURRENT
Node Power at Max. Brightness	24 V DC +/- 10%	70 mA
BUS Power	11-25 V DC	25 mA
Valves & Discrete I/O	24 V DC +/- 10%	8 A maximum
Power Connector	Single key 4 pin 7/8" MINI type (male)	
Communication Connector	Single key 5 pin 7/8" MINI type (male)	
LED's	Module Status and Network Status	
OPERATING DATA		
Temperature Range (ambient)	-23° to +50°C	
Humidity	95% relative humidity, non-condensing	
Vibration / Shock	IEC 60068-2-27, IEC 60068-2-6	
Moisture Protection	IP65, IP67 (with appropriate assembly and termination)	
CONFIGURATION DATA		
Graphic Display	Display used for setting Node Address, Baud Rate, Fault / Idle Actions, and all other system settings.	
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system setting in the event of total or partial system failure.	
Maximum Valve-Solenoid Outputs	32	
Maximum Addressable I/O Points	Various combinations of 256 inputs / 256 outputs	

NETWORK DATA	
Supported Baud Rates	125K Baud, 250K Baud, 500K Baud, 1M Baud
Bus Connector	Single key 5 pin 7/8" MINI type (male)
Diagnostics	Power, short, open load conditions and module health are monitored and fail-safe device settings
WEIGHT	
CANopen® Communication Module	252 g

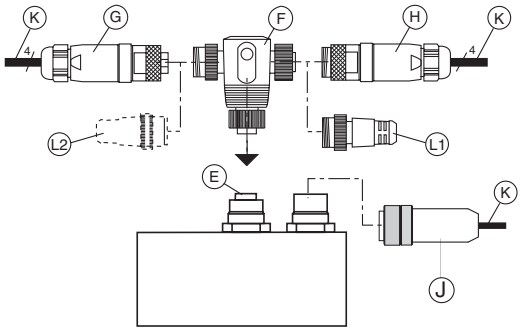
CANopen® bus connection

The front panel of the communication module for CANopen® is equipped with:
- a 4 pin male 7/8" socket for power supply
- a 5 pin male 7/8" socket for the bus cable (E)

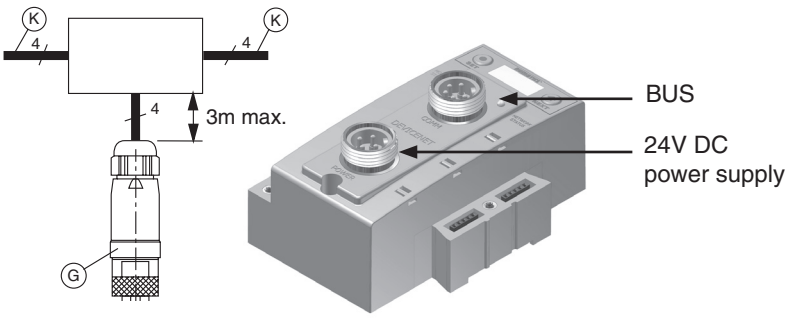
The bus can be connected in the two following ways:
- directly to the module with a T-connector,
- with a straight connector, cable (max. length: 3 m) and a DeviceNet distributor box.

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

■ Wiring with T-connector

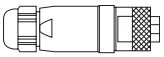
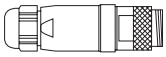
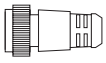
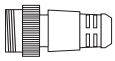
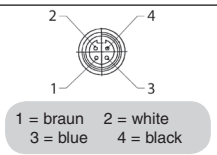


■ Connection with distributor box



Accessories for CANopen®

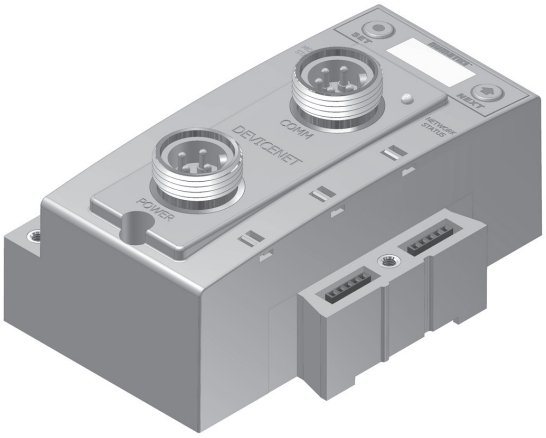
The modules on either side of the system must be provided with terminating resistors (H)

	Accessory	Description	Order Code
G		5 pin straight 7/8-16 UN female network connector	**88161930**
H		5 pin straight 7/8-16 UN male network connector	**88161931**
F		T-connector 7/8-16 UN, 5 male / female / female pins	**88161932**
L1		Terminating resistor female plug 120 ohms	**88161933**
L2		Terminating resistor male plug 120 ohms	**88161934**
J		4 pin straight female cable connector 7/8" , supply 24 V DC	**230-1003**
		4 pin elbow female cable connector 7/8" , supply 24 V DC	**230-1001**
		4 pin elbow female cable connector 7/8" with 9,15 m cable, supply 24 V DC 	**230-950**

(K) Cable to be ordered separately.

DeviceLogix

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



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

DESCRIPTION	REPLACEMENT PART NUMBER
DeviceLogix communications module (node)	**240-293**

DeviceLogix

COMM  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 (valves & out)
Pin 2 = +24 V DC (node & in)
Pin 3 = 0 V DC (node & in)
Pin 4 = 0 V DC (valves & out)

Technical Data

ELECTRICAL DATA	VOLTAGE	CURRENT
Node Power at Max. Brightness	24 V DC +/- 10%	70 mA
BUS Power	11-25 V DC	25 mA
Valves & Discrete I/O	24 V DC +/- 10%	8 A maximum
Power Connector	Single key 4 pin 7/8" MINI type (male)	
Communication Connector	Single key 5 pin 7/8" MINI type (male)	
LED's	Module Status and Network Status	
OPERATING DATA		
Temperature Range (ambient)	-23° to +50°C	
Humidity	95% relative humidity, non-condensing	
Vibration / Shock	IEC 60068-2-27, IEC 60068-2-6	
Moisture Protection	IP65, IP67 (with appropriate assembly and termination)	
CONFIGURATION DATA		
Communication Module	Display used for setting Node Address, Baud Rate, Fault / Idle Actions, and all other system settings.	
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system setting in the event of total or partial system failure including embedded DeviceLogix logic instructions.	
Maximum Valve-Solenoid Outputs	32	
NETWORK DATA		
Supported Baud Rates	125K Baud, 250K Baud, 500K Baud, with Auto-Baud detection	
Supported Connection Type	Polled, Cyclic, Change of State (COS) and combination Message Capability	
Bus Connector	Single key 5 pin 7/8" MINI type (male)	
Diagnostics	Power, short, open load conditions and module health are monitored and fail-safe device settings	
Special Features	Supports function block diagram and ladder logic programming	
WEIGHT		
DeviceLogix Communication Module	252 g	

DeviceLogix bus connection

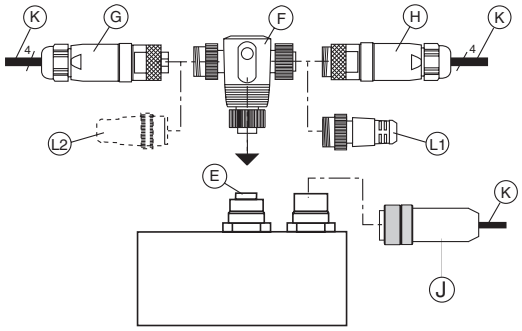
The front panel of the communication module for DeviceLogix is equipped with a 5 pin 7/8-16 UN male socket for the bus cable.

The bus can be connected in the two following ways:

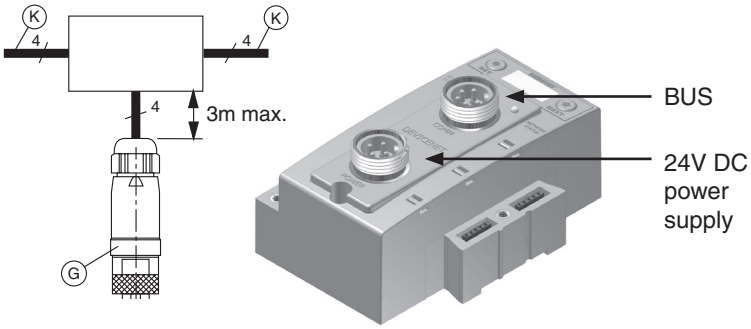
- directly to the module with a T-connector;
- with a straight connector, cable (max. length: 3 m) and distributor box.

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

■ Wiring with T-connector

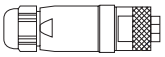
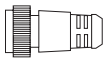
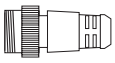
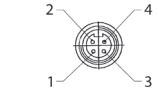


■ Connection with distributor box



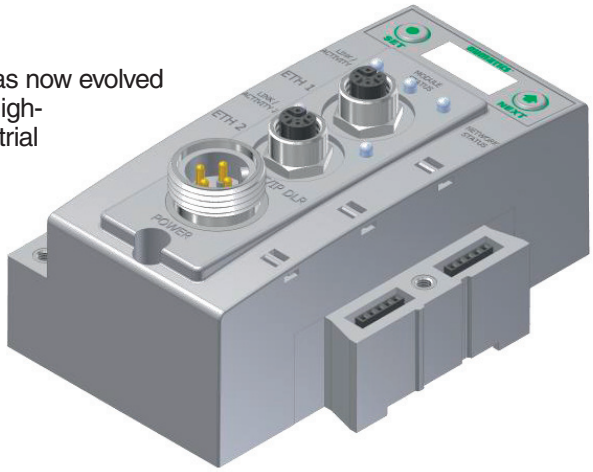
Accessories for DeviceLogix

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

	Accessory	Description	Order Code
G		5 pin straight 7/8-16 UN female connector	**88161930**
H		5 pin straight 7/8-16 UN male connector	**88161931**
F		T-connector 7/8-16 UN, 5 male / female / female pins	**88161932**
L1		Terminating resistor female plug 120 ohms	**88161933**
L2		Terminating resistor male plug 120 ohms	**88161934**
J		4 pin straight female cable connector 7/8”	**230-1003**
		4 pin elbow female cable connector 7/8”	**230-1001**
		4 pin elbow female cable connector 7/8” with 9,15 m cable  1 = braun 2 = white 3 = blue 4 = black	**230-950**

(K) Cable to be ordered separately.

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 for configuration, testing and even retrieval of technical documentation.

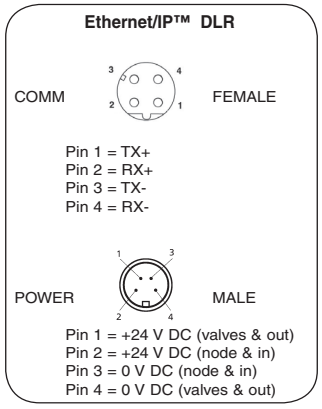
Numatics' G3 EtherNet/IP™ DLR (Device Level Ring) node with integrated display has an embedded switch which allows the unit to be used in simplified networks with linear topology configurations (daisy chain). This technology alleviates the need for an external Ethernet switch device in a single subnet 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).

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

Numatics' G3 EtherNet/IP™ nodes are capable of addressing combinations of up to 544 Outputs and 256 Inputs.

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

More information about Ethernet and the ODVA can be obtained from the following website: Open Device Vendors Association (ODVA) www.odva.org.



Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness Valves and Discrete I/O	24 V DC +/- 10% 24 V DC +/- 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	

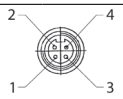
Operating Data	
Temperature Range	-10° to 115° F (-23° to +50° C)
Humidity	95% relative humidity, non-condensing
Vibration / Shock	IEC 60068-2-27, IEC 60068-2-6
Moisture	IP65, IP67 (with appropriate assembly and termination)

Configuration Data	
Graphic Display	Display used for setting IP address, Subnet Mask, Fault / Idle Actions, and all other system settings
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system settings in the event of total or partial system failure
Maximum Valve Solenoid Outputs	32
Maximum Sub-Bus I/O Points	Various combinations of 544 outputs and 256 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	
EtherCAT® communications module	227 g

Accessories for EtherNet DLR

Accessory	Description		Order Code
	M12 Straight 4 Pin Male D-Coded to Male RJ45 network Cable - Shielded	5m	**QA0405MK0VA04000**
		10m	**QA0410MK0VA04000**
	M12 Straight 4 Pin Male D-Coded Field Wireable network Connector PG 9 Cable Gland – Screw Terminal		**QA04F20000000000**
	4 pin straight female cable connector 7/8", suply 24 V DC		**230-1003**
	4 pin elbow female cable connector 7/8", suply 24 V DC		**230-1001**
	4 pin elbow female cable connector 7/8" with 9,15 m cable, suply 24 V DC	 1 = braun 2 = white 3 = blue 4 = black	**230-950**

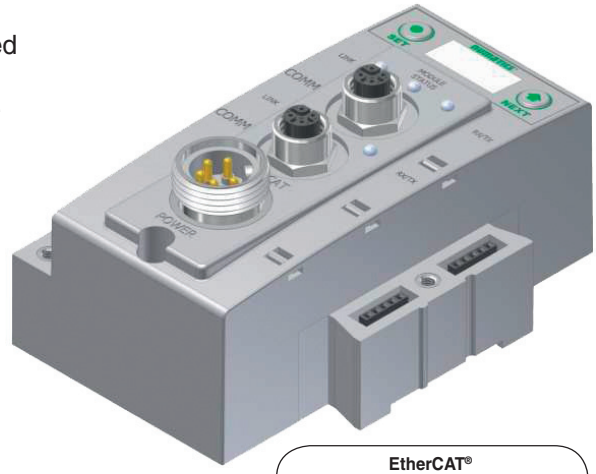
EtherCAT®

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.

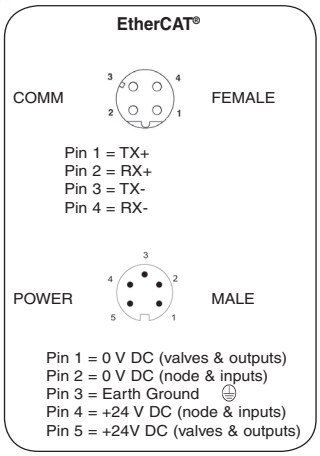
Numatics' G3 EtherCAT® node has an integrated graphic display for simplified commissioning and diagnostics. It is capable of addressing combinations of up to 544 outputs and 256 inputs.

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	240-310



Technical Data

Electrical Data	Voltage	Current
Node Power at Max. Brightness Valves and Discrete I/O	24 V DC +/- 10% 24 V DC +/- 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	

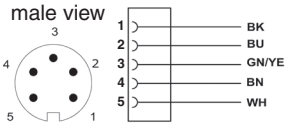
Operating Data	
Temperature Range	-10° to 115°F (-23° to +50°C)
Humidity	95% relative humidity, non-condensing
Vibration / Shock	IEC 60068-2-27, IEC 60068-2-6
Moisture	IP65, IP67 (with appropriate assembly and termination)

Configuration Data	
Graphic Display	Display used for setting IP address, Subnet Mask, Fault / Idle Actions, and all other system settings
ARM	(Auto Recovery Module) Optional module that contains automatic recovery of system settings in the event of total or partial system failure
Maximum Valve Solenoid Outputs	32
Maximum Sub-Bus I/O Points	Various combinations of 544 outputs and 256 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	227 g

Accessories for EtherCAT®

Accessory	Description		Order Code
	M12 Straight 4 Pin Male D-Coded to Male RJ45 Cable - Shielded supply 24 V DC	5m	**QA0405MK0VA04000**
		10m	**QA0410MK0VA04000**
	M12 Straight 4 Pin Male D-Coded Field Wireable Connector PG 9 Cable Gland – Screw Terminal		**QA04F20000000000**
	5 pin straight female cable connector 7/8”, supply 24 V DC		**MC05F90000000000**
	5 pin elbow female cable connector 7/8”, supply 24 V DC		**MD05F20000000000**
	5 pin elbow female cable connector 7/8” with 10 m cable Euro colour code supply 24 V DC		**MD0510MAG0000000**