Effective April 2025
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DXX-NET-EIP PowerXL dual-port EtherNet/IP communication interface for PowerXL DX1 variable frequency drive

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Original operating manual

The German-language edition of this document is the original operating manual.

Translation of the original operating manual

All editions of this document other than those in German language are translations of the original operating manual.

1. Edition 2022, publication date 01/22

2. Edition 2022, publication date 04/22

See revision protocol in the “About this manual“ chapter.

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Contents

Contents

Safety

⚠ DANGER!

Dangerous electrical voltage!

Before commencing the installation

- Disconnect the power supply of the device
- Ensure that devices cannot be accidentally restarted
- Verify isolation from the supply
- Earth and short circuit the device
- Cover or enclose any adjacent live components
- Only suitably qualified personnel in accordance with EN 50110-1/-2 (VDE 0105 Part 100) may work on this device/system
- Before installation and before touching the device ensure that you are free of electrostatic charge
- The functional earth (FE, PES) must be connected to the protective earth (PE) or the potential equalization. The system installer is responsible for implementing this connection
- Connecting cables and signal lines should be installed so that inductive or capacitive interference does not impair the automation functions
- Install automation devices and related operating elements in such a way that they are well protected against unintentional operation
- Suitable safety hardware and software measures should be implemented for the I/O interface so that an open circuit on the signal side does not result in undefined states in the automation devices
- Ensure a reliable electrical isolation of the extra-low voltage of the 24 V supply. Only use power supply units complying with IEC 60364-4-41 (VDE 0100 Part 410) or HD384.4.41 S2
- Deviations of the input voltage from the rated value must not exceed the tolerance limits given in the
- specifications, otherwise this may cause malfunction and dangerous operation
- Emergency stop devices complying with IEC/EN
- 60204-1 must be effective in all operating modes of the automation devices. Unlatching the emergency-stop devices must not cause a restart
- Devices that are designed for mounting in housings or control cabinets must only be operated and controlled after they have been installed and with the housing closed. Desktop or portable units must only be operated and controlled in enclosed housings
- Measures should be taken to ensure the proper restart of programs interrupted after a voltage dip or failure. This should not cause dangerous operating states even for a short time. If necessary, emergency-stop devices should be implemented
- Wherever faults in the automation system may cause injury or material damage, external measures must be implemented to ensure a safe operating state in the event of a fault or malfunction (for example, by means of separate limit switches, mechanical interlocks, and so on)
- Depending on their degree of protection, adjustable frequency drives may contain live bright metal parts, moving or rotating components, or hot surfaces during and immediately after operation
- Removal of the required covers, improper installation, or incorrect operation of motor or adjustable frequency drive may cause the failure of the device and may lead to serious injury or damage
- The applicable national accident prevention and safety regulations apply to all work carried out on live adjustable frequency drives
- The electrical installation must be carried out in accordance with the relevant regulations (for example, with regard to cable cross sections, fuses, PE)
- Transport, installation, commissioning, and maintenance work must be carried out only by qualified personnel (IEC 60364, HD 384 and national occupational safety regulations)
- Installations containing adjustable frequency drives must be provided with additional monitoring and protective devices in accordance with the applicable safety regulations. Modifications to the adjustable frequency drives using the operating software are permitted
- All covers and doors must be kept closed during operation
- To reduce hazards for people or equipment, the user must include in the machine design measures that restrict the consequences of a malfunction or failure of the drive (increased motor speed or sudden standstill of motors). These measures include:
  - Other independent devices for monitoring safety-related variables (speed, travel, end positions, and so on)
  - Electrical or non-electrical system-wide measures (electrical or mechanical interlocks)
- Never touch live parts or cable connections of the adjustable frequency drive after it has been

disconnected from the power supply. Due to the charge in the capacitors, these parts may still be live after disconnection. Fit appropriate warning signs

Read this manual thoroughly and make sure you understand the procedures before you attempt to install, set up, operate or carry out any maintenance work on this PowerXL Adjustable Frequency Drive.

Definitions and symbols

⚠ WARNING

THIS SYMBOL INDICATES HIGH VOLTAGE. IT CALLS YOUR ATTENTION TO ITEMS OR OPERATIONS THAT COULD BE DANGEROUS TO YOU AND OTHER PERSONS OPERATING THIS EQUIPMENT. READ THE MESSAGE AND FOLLOW THE INSTRUCTIONS CAREFULLY.

⚠ WARNING

THIS SYMBOL IS THE "SAFETY ALERT SYMBOL." IT OCCURS WITH EITHER OF TWO SIGNAL WORDS: CAUTION OR WARNING, AS DESCRIBED BELOW.

⚠ WARNING

INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, CAN RESULT IN SERIOUS INJURY OR DEATH.

⚠ CAUTION

INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, CAN RESULT IN MINOR TO MODERATE INJURY, OR SERIOUS DAMAGE TO THE PRODUCT. THE SITUATION DESCRIBED IN THE CAUTION MAY, IF NOT AVOIDED, LEAD TO SERIOUS RESULTS. IMPORTANT SAFETY MEASURES ARE DESCRIBED IN CAUTION (AS WELL AS WARNING).

Hazardous high voltage

⚠ WARNING

MOTOR CONTROL EQUIPMENT AND ELECTRONIC CONTROLLERS ARE CONNECTED TO HAZARDOUS LINE VOLTAGES. WHEN SERVICING DRIVES AND ELECTRONIC CONTROLLERS, THERE MAY BE EXPOSED COMPONENTS WITH HOUSINGS OR PROTRUSIONS AT OR ABOVE LINE POTENTIAL. EXTREME CARE SHOULD BE TAKEN TO PROTECT AGAINST SHOCK.

- **STAND ON AN INSULATING PAD AND MAKE IT A HABIT TO USE ONLY ONE HAND WHEN CHECKING COMPONENTS**
- **ALWAYS WORK WITH ANOTHER PERSON IN CASE AN EMERGENCY OCCURS**
- **DISCONNECT POWER BEFORE CHECKING CONTROLLERS OR PERFORMING MAINTENANCE**
- **BE SURE EQUIPMENT IS PROPERLY EARTHED**
- **WEAR SAFETY GLASSES WHENEVER WORKING ON ELECTRONIC CONTROLLERS OR ROTATING MACHINERY**

⚠ WARNING

THE COMPONENTS IN THE DRIVE'S POWER SECTION REMAIN ENERGIZED AFTER THE SUPPLY VOLTAGE HAS BEEN SWITCHED OFF. AFTER DISCONNECTING THE SUPPLY, WAIT AT LEAST

FIVE MINUTES BEFORE REMOVING THE COVER TO ALLOW THE INTERMEDIATE CIRCUIT CAPACITORS TO DISCHARGE.

PAY ATTENTION TO HAZARD WARNINGS!

⚠ WARNING

DANGER 5 MIN

⚠ WARNING

ELECTRIC SHOCK HAZARD—RISK OF INJURIES! CARRY OUT WIRING WORK ONLY IF THE UNIT IS DE-ENERGIZED.

⚠ WARNING

DO NOT PERFORM ANY MODIFICATIONS ON THE AC DRIVE WHEN IT IS CONNECTED TO MAINS.

Warnings and cautions

⚠ WARNING

BE SURE TO GROUND THE UNIT FOLLOWING THE INSTRUCTIONS IN THIS MANUAL. UNGROUNDED UNITS MAY CAUSE ELECTRIC SHOCK AND/OR FIRE.

⚠ WARNING

THIS EQUIPMENT SHOULD ONLY BE INSTALLED, ADJUSTED, AND SERVICED BY QUALIFIED ELECTRICAL MAINTENANCE PERSONNEL FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THIS TYPE OF EQUIPMENT AND THE HAZARDS INVOLVED. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN DEATH OR SEVERE INJURY.

⚠ WARNING

COMPONENTS WITHIN THE DRIVE ARE LIVE WHEN IT IS CONNECTED TO POWER. CONTACT WITH THIS VOLTAGE IS EXTREMELY DANGEROUS AND MAY CAUSE DEATH OR SEVERE INJURY.

⚠ WARNING

LINE TERMINALS (L1, L2, L3), MOTOR TERMINALS (U, V, W) AND THE DC LINK/BRAKE RESISTOR TERMINALS (DC–, DC+/R+, R–) ARE LIVE WHEN THE DRIVE IS CONNECTED TO POWER, EVEN IF THE MOTOR IS NOT RUNNING. CONTACT WITH THIS VOLTAGE IS EXTREMELY DANGEROUS AND MAY CAUSE DEATH OR SEVERE INJURY.

⚠ WARNING

EVEN THOUGH THE CONTROL I/O-TERMINALS ARE ISOLATED FROM LINE VOLTAGE, THE RELAY OUTPUTS AND OTHER I/O- TERMINALS MAY HAVE DANGEROUS VOLTAGE PRESENT EVEN WHEN THE DRIVE IS DISCONNECTED FROM POWER. CONTACT WITH THIS VOLTAGE IS EXTREMELY DANGEROUS AND MAY CAUSE DEATH OR SEVERE INJURY.

EMC warnings and cautions

⚠ WARNING

THIS EQUIPMENT HAS A LARGE CAPACITIVE LEAKAGE CURRENT DURING OPERATION, WHICH CAN CAUSE ENCLOSURE PARTS TO BE ABOVE GROUND POTENTIAL. PROPER GROUNDING, AS DESCRIBED IN THIS MANUAL, IS REQUIRED. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN DEATH OR SEVERE INJURY

⚠ WARNING

BEFORE APPLYING POWER TO THIS DRIVE, MAKE SURE THAT THE FRONT AND CABLE COVERS ARE CLOSED AND FASTENED TO PREVENT EXPOSURE TO POTENTIAL ELECTRICAL FAULT CONDITIONS. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN DEATH OR SEVERE INJURY.

⚠ WARNING

AN UPSTREAM DISCONNECT/PROTECTIVE DEVICE MUST BE PROVIDED AS REQUIRED BY THE NATIONAL ELECTRIC CODET (NECT). FAILURE TO FOLLOW THIS PRECAUTION MAY RESULT IN DEATH OR SEVERE INJURY.

⚠ WARNING

THIS DRIVE CAN CAUSE A DC CURRENT IN THE PROTECTIVE EARTHING CONDUCTOR. WHERE A RESIDUAL CURRENT-OPERATED PROTECTIVE (RCD) OR MONITORING (RCM) DEVICE IS USED FOR PROTECTION IN CASE OF DIRECT OR INDIRECT CONTACT, ONLYAN RCD OR RCM OF TYPE B IS ALLOWED ON THE SUPPLY SIDE OF THIS PRODUCT.

⚠ WARNING

CARRY OUT WIRING WORK ONLY AFTER THE DRIVE HAS BEEN CORRECTLY MOUNTED AND SECURED.

⚠ WARNING

BEFORE OPENING THE DRIVE COVERS:

- **DISCONNECT ALL POWER TO THE DRIVE, INCLUDING EXTERNAL CONTROL POWER THAT MAY BE PRESENT**
- **WAIT A MINIMUM OF FIVE MINUTES AFTER ALL THE LIGHTS ON THE KEYPAD ARE OFF. THIS ALLOWS TIME FOR THE DC BUS CAPACITORS TO DISCHARGE**
- **A HAZARD VOLTAGE MAY STILL REMAIN IN THE DC BUS CAPACITORS EVEN IF THE POWER HAS BEEN TURNED OFF. CONFIRM THAT THE CAPACITORS HAVE FULLY DISCHARGED BY MEASURING THEIR VOLTAGE USING A MULTIMETER SET TO MEASURE THE DC VOLTAGE**

FAILURE TO FOLLOW THESE PRECAUTIONS MAY CAUSE DEATH OR SEVERE INJURY.

⚠ WARNING

THE OPENING OF THE BRANCH-CIRCUIT PROTECTIVE DEVICE MAY BE AN INDICATION THAT A FAULT CURRENT HAS BEEN INTERRUPTED. TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, CURRENT-CARRYING PARTS AND OTHER COMPONENTS OF THE CONTROLLER SHOULD BE EXAMINED AND REPLACED

IF DAMAGED. IF BURNOUT OF THE CURRENT ELEMENT OF AN OVERLOAD RELAY OCCURS, THE COMPLETE OVERLOAD RELAY MUST BE REPLACED.

⚠ WARNING

OPERATION OF THIS EQUIPMENT REQUIRES DETAILED INSTALLATION AND OPERATION INSTRUCTIONS PROVIDED IN THE INSTALLATION/OPERATION MANUAL INTENDED FOR USE WITH THIS PRODUCT. IT SHOULD BE RETAINED WITH THIS DEVICE AT ALL TIMES. A HARD COPY OF THIS INFORMATION MAY BE ORDERED FROM LITERATURE FULFILLMENT.

⚠ WARNING

BEFORE SERVICING THE DRIVE:

- **DISCONNECT ALL POWER TO THE DRIVE, INCLUDING EXTERNAL CONTROL POWER THAT MAY BE PRESENT**
- **PLACE A "DO NOT TURN ON" LABEL ON THE DISCONNECT DEVICE**
- **LOCK THE DISCONNECT DEVICE IN THE OPEN POSITION**

FAILURE TO FOLLOW THESE INSTRUCTIONS WILL RESULT IN DEATH OR SERIOUS INJURY.

⚠ WARNING

THE DRIVE OUTPUTS (U, V, W) MUST NOT BE CONNECTED TO THE INPUT VOLTAGE OR THE UTILITY LINE POWER AS SEVERE

DAMAGE TO THE DEVICE MAY OCCUR AND THERE MAY BE A RISK OF FIRE.

⚠ WARNING

THE HEAT SINK AND/OR OUTER ENCLOSURE MAY REACH A HIGH TEMPERATURE.

PAY ATTENTION TO HAZARD WARNINGS!

HOT SURFACE—RISK OF BURN. DO NOT TOUCH!

⚠ WARNING

IN A DOMESTIC ENVIRONMENT, THIS PRODUCT MAY CAUSE RADIO INTERFERENCE, IN WHICH CASE SUPPLEMENTARY MITIGATION MEASURES MAY BE REQUIRED.

About this manual

0.1 Subject

This manual MN040077EN is the original operating manual and describes the communication interface (hereinafter referred to as PowerXL Dual EIP communication interface for short)

- DXX-NET-EIP for PowerXL DX1 variable frequency drive

The following chapters describe special information for project planning, installation, and operation of the communication interface DXX-NET-EIP.

Special functions such as "Access to cyclic and acyclic data of the variable frequency drive" are also described.

0.2 Target audience

This manual, MN040077EN, is intended for engineers, electricians, and automation technicians.

A thorough knowledge of the EtherNet I/P communication system and the programming of a EtherNet/IP master is required.

In addition, knowledge of handling the PowerXL DX1 variable frequency drive is required.

Please read this manual carefully before running the communication interface DXX-NET-EIP.

We assume that you have a good knowledge of engineering fundamentals, and that you are familiar with handling electrical systems and machines, as well as with reading technical drawings.

⚠ CAUTION

Installation requires qualified electrician

0.3 List of revisions

The following significant amendments have been introduced since previous issues:

This is the original version of this manual. This space is reserved for future revisions.

0.4 Writing conventions

0.4.1 Safety warning concerning property damage

⚠ WARNING

Indicates a potentially hazardous situation that may result in property damage.

0.4.2 Safety warning concerning personal injury hazards

⚠ CAUTION

Warns of hazardous situations that may cause slight injury.

⚠ WARNING

Warns of hazardous situations that could result in serious injury or death.

⚠ DANGER

Warns of hazardous situations that result in serious injury or death.

0.4.3 Hints

- Indicates useful tips.
- The housing, as well as other safety-relevant parts, has been left out in some of the figures in this manual in order to make the figures easier to understand. However, it is important to note that the components described in this manual must always be operated with their housing installed properly, as well as with all required safety-relevant parts.
- Follow the installation instructions in the relevant instruction leaflets.
- All the specifications in this manual refer to the hardware and software versions documented in it.

0.5 Additional information and documents

For more information on the series described in this manual, please visit the Eaton website.

www.eaton.com/drives

Additional information can be found in the following documents:

Document	Type	Subject
MN040067EN	Manual / Quick Start Guide	PowerXL DX1 Quick Start Guide-Drive
IL040072EN	Instruction Leaflet	PowerXL DX1 Instruction Drive-leaflet
MN040068EN	Manual	PowerXL DX1 Installation Manual
MN040070EN	Manual	Functional Safety Card Manual
MN040069EN	Manual	PowerXL DX1 Applications Manual
MN040071EN	Manual	PowerXL DX1 Onboard Communications manual
MN040072EN	Manual	Incontrol manual
MN040073EN	Manual / Quick Start Guide	Incontrol quick start guide
MN040074EN	Manual	Safety tool manual
IL040073EN	Instruction Leaflet	Functional safety card-Instruction leaflet
IL040074EN	Instruction Leaflet	ABZ/SABZ card-Instruction leaflet
IL040075EN	Instruction Leaflet	Fiber card-Instruction leaflet
IL040076EN	Instruction Leaflet	EIP card-Instruction leaflet
IL040077EN	Instruction Leaflet	Dual EIP card-Instruction leaflet
MN040075EN	Manual	ABZ/SABZ Encoder card manual
MN040076EN	Manual	Fiber card manual
MN040077EN	Manual	E/IP Dual-Port Communications Manual
IL040078EN	Instruction Leaflet	PC cable-Instruction leaflet
IL040079EN	Instruction Leaflet	Fiber cable-Instruction leaflet
IL040080EN	Instruction Leaflet	Remote keypad kit-Instruction leaflet
MN040078EN	Manual / Quick Start Guide	Touch screen keypad-quick start guide
MN040079EN	Manual	I/O Option Cards Manual

0.6 Terminology

The following abbreviations are used in this manual.

- **Abbreviations**
  When we refer to the **PowerXL dual-port EIP communication interface** as an abbreviation, this means the variant
  - DXX-NET-EIP

0.7 Abbreviations and symbols

The following abbreviations are used in this manual:

dec	decimal (number system based on 10)
EMC	Electromagnetic compatibility
FB	Field bus
FS	Frame size
GND	Ground (0 V potential)
EDS	Electronic data sheet
HEX	hexadecimal (number system based on 16)
LED	Light emitting diode (LED)
PC	Personal computer
PD	Process Data
EIP	EtherNet/IP
PLC	programmable logic controller
SW	Status Word
UL	Underwriters Laboratories

Symbols used in this manual have the following meanings:

- Indicates instructions to be followed.
- Note on the application area

0.8 Units of measurement

Every physical dimension included in this manual uses international metric system units, otherwise known as SI (Système International d'Unités) units. For the purpose of the equipment's UL certification, some of these dimensions are accompanied by their equivalents in imperial units.

Table 1: Unit conversion examples

Designation	US-American designation	Anglo American value	SI value	Conversion value
Length	inch	1 inch (")	25.4 mm	0.0394
Output	horsepower	1 HP = 1.014 PS	0.7457 kW	1.341
Torque	pound-force inches	1 lbf in	0.113 Nm	8.851
Temperature	Fahrenheit	1 °F (T_F)	-17.222 °C (T_C)	$T_F = T_C \times 9/5 + 32$
Speed	revolutions per minute	1 rpm	1 min-1	1
Weight	pound	1 lb	0.4536 kg	2.205

1 Series

1.1 Checking the delivery

Before opening the package, please check the nameplate on it to make sure that you received the correct connection.

The PowerXL dual-port EIP interface is carefully packaged and shipped. The device should be shipped only in their original packaging and using a suitable means of transportation.

Please take note of the labels and instructions on the packaging, as well as the manual for the unpacked device.

Open the packaging with suitable tools and inspect the contents immediately after receipt in order to ensure that they are complete and undamaged.

1.2 Equipment supplied

1.2.1 DXX-NET-EIP

The packaging must contain the following parts:

- A DXX-NET-EIP communication interface
- An instructional leaflet IL040077EN

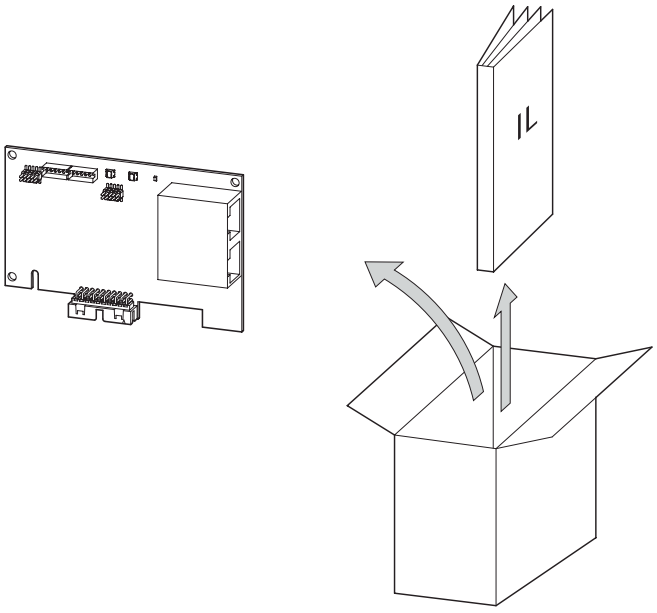


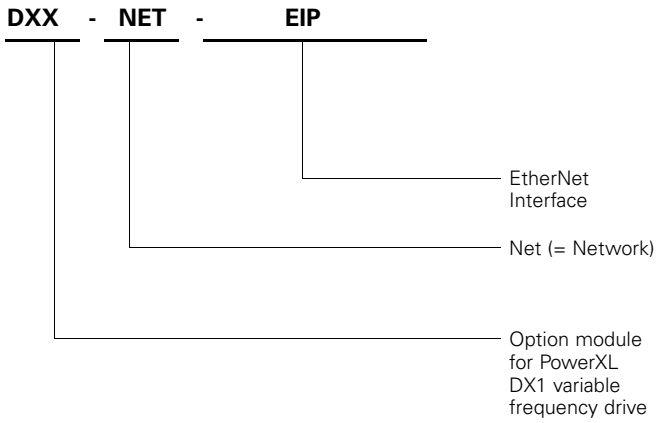
Figure 1. Scope of delivery for the PowerXL dual-port EIP interface

1.3 Type code

1.3.1 DXX-NET-EIP

The type code and type designation of the PowerXL dual-port EIP interface are structured as follows:

Figure 2. Type code of the DXX-NET-EIP communication interface



1.4 Technical data

Table 2. PowerXL series

Attribute	Description	Specification
Input ratings	Input voltage Uin	3-phase, 208 V to 240 V, 380 V to 500 V, 525 V to 600 V, –15 to 10%
	Input frequency	50 Hz to 60 Hz (variation up to 45 Hz to 66 Hz)
	Connection to power	Once per minute or less
	Starting delay	3 s (FR1 and FR2), 4 s (FR3), 5 s (FR4), 6 s (FR5), 11 s (FR6)
	Short-circuit withstand rating	100 kAIC (Fuses)
Output ratings	Output voltage	0 to Uin
	Continuous output current	I_L: ambient temperature maximum 40 °C, up to 60 °C with derating I_H: ambient temperature maximum 50 °C, up to 60 °C with derating
	Overload current	CT: 150% overload for 1 minute, 180% for 3 sec, 200% for 2 sec VT: 110% overload for 1 minute, 150% for 3 sec
	Initial output current	200% (2 s / 20 s) based of the drives rated nameplate IH current rating.
	Output frequency	0–400 Hz (standard)
	Frequency resolution	0.01 Hz
Control characteristics	Control methods	Frequency control (0)
		Speed control (1)
		PM Control 1 (2)
		PM Control 2 (3)
		Open loop speed control (5)
		Open loop torque control (6)
		Closed loop speed control (7)
		Closed loop torque control (8)
	Switching frequency	230 V Range:
		FR1–4: 1 kHz to 16 kHz
		FR5: 1 kHz to 12 kHz
		FR6: 1 kHz to 10 kHz
		480 V Range:
		FR1–3: 1 kHz to 16 kHz
		FR4/5: 1 kHz to 12 kHz
		FR6: 1 kHz to 10 kHz
		230 V / 480 V Defaults:
		FR1–3: 4 kHz
		FR4–5: 3.6 kHz
		FR6: 2 kHz
		FR1–6: 1 kHz to 6 kHz
		600 V Defaults:
		FR1–6: 1.5 kHz
		Automatic switching frequency derating in case of overload.
	Frequency reference	Analog input: resolution 0.1% (10-bit), accuracy +1% Analog output: resolution 0.1% (10-bit), accuracy +1% Panel reference: resolution 0.01 Hz
	Field weakening point	8 Hz to 400 Hz
	Acceleration time	0.1 s to 3000 s
	Deceleration time	0.1 s to 3000 s
	Braking torque	DC brake: 30% x Motor Rated Torque (Tn) (without brake chopper) Dynamic braking (with optional brake chopper using an external brake resistor): 100% continuous maximum rating

Attribute	Description	Specification
Ambient conditions	Ambient operating temperature	–10 °C (no frost) to +50 °C, up to +60 °C with derating (CT) –10 °C (no frost) to +40 °C, up to +60 °C with derating (VT)
	Storage temperature	–40 °C to +70 °C
	Relative humidity	0–95% RH, noncondensing, non-corrosive
	Altitude	100% load capacity (no derating) up to 3280 ft (1000 m) 1% derating for each 328 ft (100 m) above 3280 ft (1000 m) Up to 6562 ft (2000 m) (UL listing) Up to 13123 ft (4000 m) (without UL listing) If the installation site is higher than 6562 ft (2000 m) above sea level, contact your local Eaton representative for further information.
	Vibration:	EN 61800-5-1/ EN 60068-2-6 10–150 Hz Displacement amplitude: 0.075 mm (peak) at 10 Hz to 57 Hz Maximum acceleration amplitude: 1g at 57 Hz to 150 Hz
	Shock:	ISTA 1 A / EN 60068-2-27 Operating: Maximum 5g, 30ms
	Overvoltage	Overvoltage Category III
	Pollution degree	Pollution Degree 2
	Enclosure class	IP21/Type 1 IP54/Type 12
	MTBF	230V FR1: 186,837 hours 230V FR2: 196,257 hours 230V FR3: 160,898 hours 230V FR4: 178,913 hours 230V FR5: 155,106 hours 230V FR6: 170,557 hours 480V FR1: 228,992 hours 480V FR2: 221,169 hours 480V FR3: 185,916 hours 480V FR4: 179,937 hours 480V FR5: 169,855 hours 480V FR6: 173,303 hours 575V FR1: 214,914 hours 575V FR2: 209,985 hours 575V FR3: 171,579 hours 575V FR4: 170,461 hours 575V FR5: 154,297 hours 575V FR6: 171,701 hours
	Noise (Sound pressure level)	FR1: 46.4 dB FR2: 60 dB FR3: 64.4 dB FR4: 66.4 dB FR5: 66 dB FR6: 70 dB
Standards	UL/cUL	UL 61800-5-1, CSA C22.2 No. 274-17
	LVD	IEC/EN 61800-5-1
	EMC	IEC/EN 61800-3 Second environment and Industrial location 230/480 V Series: Category C2 575 V Series: Category C3
	RED	EN301489-1 V2.2.3, EN301489-17 V 3.2.4, EN 300328 V2.2.2,EN 62479
	STO	SIL 3, Cat.4, PL e acc. to IEC/EN 61800-5-2, IEC/EN 61508, IEC/EN 62061 and EN ISO 13849-1
	RoHS	EN IEC 63000

Attribute	Description	Specification
Standards	Eco-Design	IE2 acc. to IEC/EN 61800-9-2, (90;100) losses are marked on rating labels Other details can be found at: Eaton.com/EcoDesign-VFD
	Electrostatic discharge	IEC/EN 61000-4-2,4 kV and 6 kV CD or 8 kV AD, Criterion B
	Fast transient burst	IEC/EN 61000-4-4, 2 kV/5 kHz and 100 kHz, Criterion B
	Approvals	UL, cUL, CE, TUV, RCM, RoHS
Fieldbus connections		Onboard: Modbus® TCP, Modbus RTU
Safety/protections	Overvoltage protection	Yes
	Overvoltage trip limit	230 V drives: 450 V 480 V drives: 900 V 600 V drives: 1100 V
	Undervoltage protection	Yes
	Undervoltage trip limit	230 V drives: 190 V 480 V drives: 350 V 600 V drives: 500 V
	Earth fault protection	Yes, Default: 15% Motor FLA Min: 0% Motor FLA Max: 30% Motor FLA
	Input phase supervision	Yes
	Motor phase supervision	Yes
	Overcurrent protection	Yes
	Unit overtemperature protection	Yes
	Motor overload protection	Yes
	Motor stall protection	Yes
	Motor underload protection	Yes
	DC bus overvoltage control	Yes
	Short-circuit protection of 24 V reference voltages	Yes
	Surge protection	Yes (Power ports: differential mode 2 kV; common mode 4 kV)
	Common coated boards	Yes (prevents corrosion)
	RTC Battery	3.0V Lithium Battery (CR2032W) ROHS compliant Follow local Recycling program to dispose Note: Only active when Power Removed
Efficiency	Drive efficiency	230V drives: 97% approximately 480/600V drives: 98% approximately

1.5 Pin assignment

1.5.1 EtherNet connection

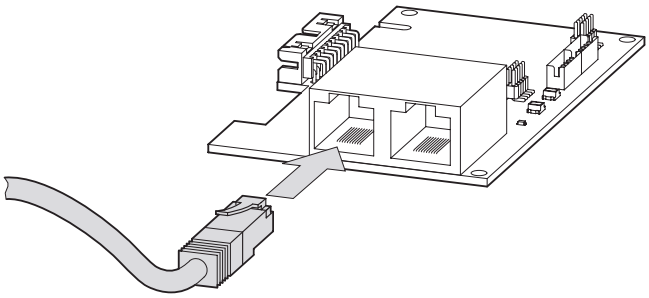
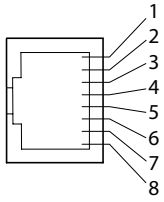


Figure 3. Connection of the RJ45 plug for DXX-NET-EIP

Generally, connection cables with RJ45 plugs for EtherNet are available as standard ready-for-use cables. They can also be prepared individually.

This will require the connections shown below (pin assignment).



PIN	Meaning
1	TD+
2	TD-
3	RD+
4	To GND via RC circuit
5	To GND via RC circuit
6	RD-
7	To GND via RC circuit
8	To GND via RC circuit

Figure 4. Pin assignment for RJ45 plugs (EtherNet connection)

1.5.2 Serial interface

1.5.2.1 DXX-NET-EIP

A modification of the parameter values via the "InControl" software or the operating unit requires a connection to the RJ45 socket of the PowerXL DX1 basic device. This is located behind the keypad.

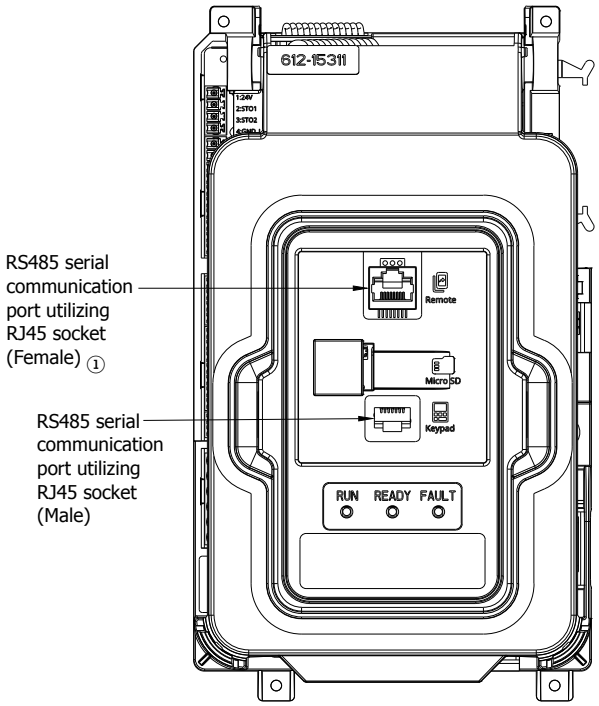


Figure 5. Interface

① CAUTION: Not an Ethernet port.

Alternatively, the serial connection can be realized via terminals.

- Further details on PIN assignment and addressing can be found in the MN040013EN manual

1.5.3 External 24 Vdc control voltage

If no mains supply is available, using an external 24 Vdc voltage

- Communication to the PLC can be established
- An IP address assigned
- ETHERNET network name assigned

1.5.3.1 DXX-NET-EIP

The control section of the PowerXL DX1 basic unit must be supplied with an external voltage of 24 Vdc via an external power supply unit.

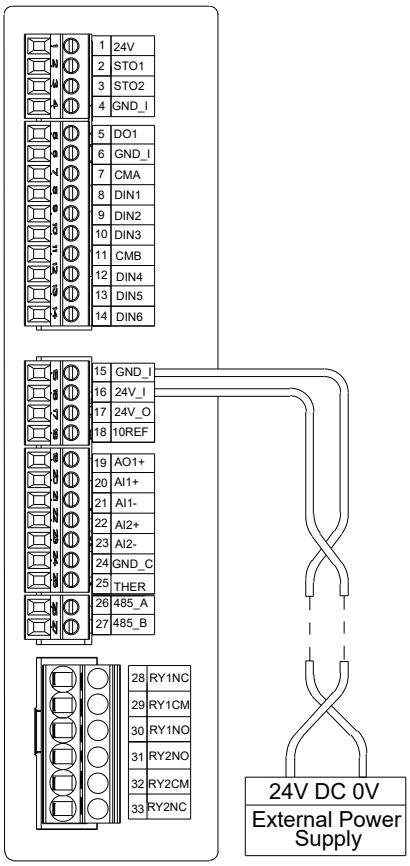


Figure 6. External power supply

1.6 Proper use

The PowerXL dual-port EIP communication interface is an electrical device for controlling and connecting the PowerXL DX1 variable frequency drive to the standardized EtherNet field bus system.

It is intended to be installed in a machine or assembled with other components to form a machine or system.

The PowerXL dual-port EIP communication interface is not a household appliance, but is intended as a component exclusively for use for commercial purposes.

⚠ WARNING

Observe the technical data and connection requirements described in this manual. Any other usage constitutes improper use.

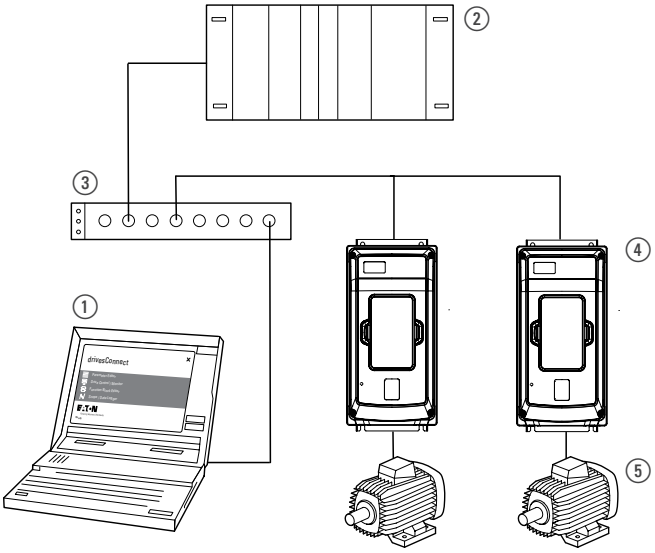


Figure 7. Integration of the Power XL DXX-NET-EIP communication interface into an EtherNet network

① PC

② Head-end controller (PLC)

③ Switch

④ Ethernet device

⑤ Motor(s)

1.7 Maintenance and inspection

The PowerXL dual-port EIP communication interface is maintenance-free if the general rated operational data is observed and the technical data specific to EtherNet are taken into account.

However, external factors can influence the components's lifespan and function. We therefore recommend that you check the device regularly.

If the communication interface is damaged by external influences, repair is not possible. Replacement or repair of individual components of the communication interface is not intended.

1.8 Storage

If the PowerXL dual-port EIP communication interface is stored before use, the following ambient conditions must prevail at the storage location:

- Storage temperature: -40 °C to +85 °C
- Relative average air humidity: < 95 %
- No condensation allowed

1.9 Service and warranty

If you have a problem with your PowerXL dual-port EIP device, please contact your local sales organization.

Kontaktdaten: Eaton.com/contacts
Service-Seite: Eaton.com/aftersales

When you call, have following data ready:

- The part number of this option card DXX-NET-EIP
- The date of purchase
- A detailed description of the problem that occurred in connection with the device (e.g., DXX-NET-EIP)

1.10 Disposal

The PowerXL dual-port EIP communication interface can be disposed of as electronic waste in accordance with the currently applicable national regulations. Dispose of the device according to the applicable environmental laws and provisions for the disposal of electrical or electronic devices.

2 Configuration

⚠ DANGER—CONTROL FAILURE

When engineering your control diagram, make sure to take all potential control path faults into account.

When it comes to critical control functions, make sure that a safe state can be reached after a control path fails.

Critical control function examples include:

- **Emergency shutdown (emergency stop)**
- **Overtravel stop**
- **Power supply failure**
- **Restart**

Provide separate or redundant control paths.

Make sure that system control paths include communication connections.

Take the effect of unforeseen transmission delays and connection problems into account.

Carefully and individually test every implementation of a product before putting it into operation.

Observe all general accident prevention and local safety regulations.

Information for the USA:

For more information, please refer to the latest issue of NEMA ICS 1.1, "Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control", and the latest issue of NEMA ICS 7.1, "Safety Standards for Construction and Guide for Selection, Installation, and Operation of Adjustable-Speed Drive Systems."

In addition to property damage, failure to observe the above instructions may result in serious bodily injury or even death.

2.1 Compatibility overview—hardware and firmware

The following shows the versions of the hardware and firmware with which the PowerXL dual-port EIP communication interface is compatible with the PowerXL DX1 variable frequency drive.

Firmware

The PowerXL dual-port EIP communication interface can be used with firmware in the following cases:

Note: The current firmware version can be found under the resources tab on eaton.com/DX1.

- An update of the firmware version of the communication interface DXX-NET-EIP can be done via the Firmware Upgrade Tool (part of the software "InControl")
- The software "InControl" as well as the necessary firmware versions are available free of charge on the Eaton website at the following address: Eaton.com/software

3 Installation

3.1 Introduction

This chapter provides a description of the mounting and the electrical connection for the PowerXL Dual EIP communication interface.

- Perform all installation work only with the indicated, appropriate tools and do not apply any force

Observe the following information when setting up the system.

⚠ DANGER

All handling and installation work relating to the mechanical surface mounting and installation of the PowerXL EIP communication interface may only be carried out in a voltagefree state.

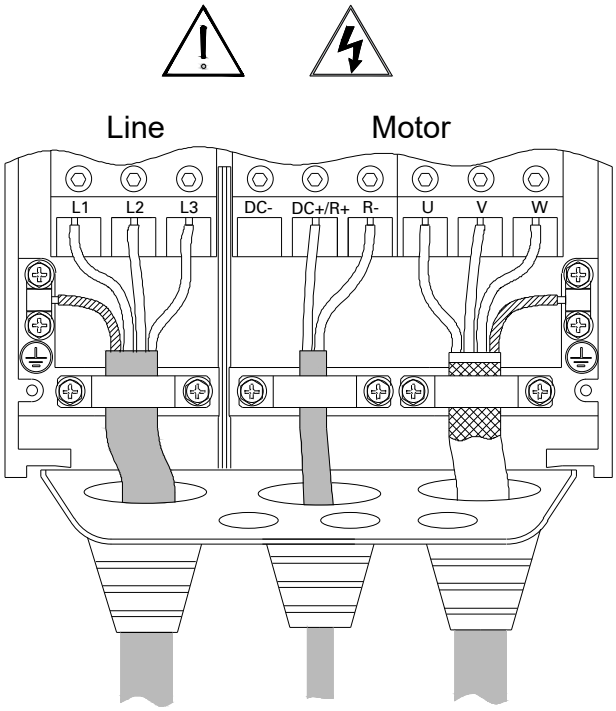


Figure 8. Only carry out installation work in a voltage-free state

3.2 Installation documents

The following documents provide information on installing a PowerXL DX1 variable frequency drive (with degree of protection IP20):

Series	Document
PowerXL DX1 Variable Frequency Drive	MN040068EN (Installation Manual)
PowerXL DX1 Variable Frequency Drive	IL040072EN (Instruction Leaflet)

3.3 Assembly

3.3.1 DXX-NET-EIP

The connection from the PowerXL dual-port EIP interface to the EIP field bus is made via an RJ45 plug.

The PowerXL dual-port EIP interface is plugged into slot D only on the front of the DX1 variable frequency drive. The option slots are located under the cover case.

For PowerXL DX1 variable frequency drive, DXX-NET-EIP card is allowed only on Slot D.

To do this, the 4 or 6 screws (depending on the frame size) on the variable frequency drive must be opened using a screwdriver.

There is also a hinged cover that will need to be opened to access the option card slots.

Step 1: Flip the B-cover up and stop at a specific angle (120°or 150°).

Step 2: Insert the option card to slot D. Make sure the option cards have been inserted into the slots fully.

Step 3: Flip the B-cover down for snap fit with C-cover to fix the option cards firmly.

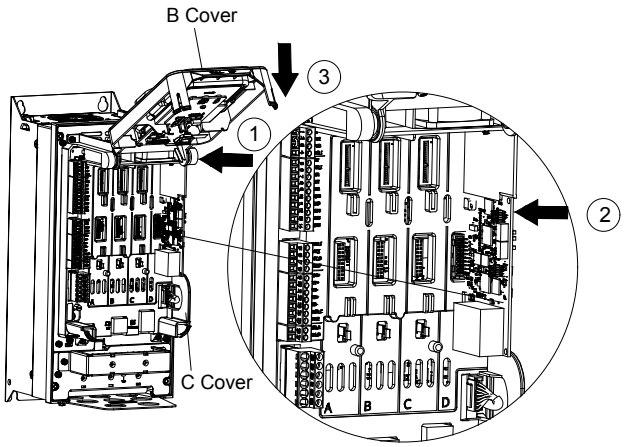


Figure 9. Plugging in the communication interface

- Further details on installation and cable routing can be found in the MN040068EN manual (installation manual) and in the IL040072EN instruction leaflet

3.4 Installing the field bus

- Never lay the cable of a field bus system directly parallel to the energy carrying cables

When installing the connection, make sure that the control and signal cables (0–10 V, 4–20 mA, 24 Vdc, etc.), as well as the communication system's (EtherNet) connection cables, are not routed directly parallel to mains connection or motor connection cables conveying power.

With parallel cable routing, the clearances between control, signal and field bus cables b and energy-carrying mains and motor cables a must be greater than 30 cm.

All cables should always intersect at right angles.

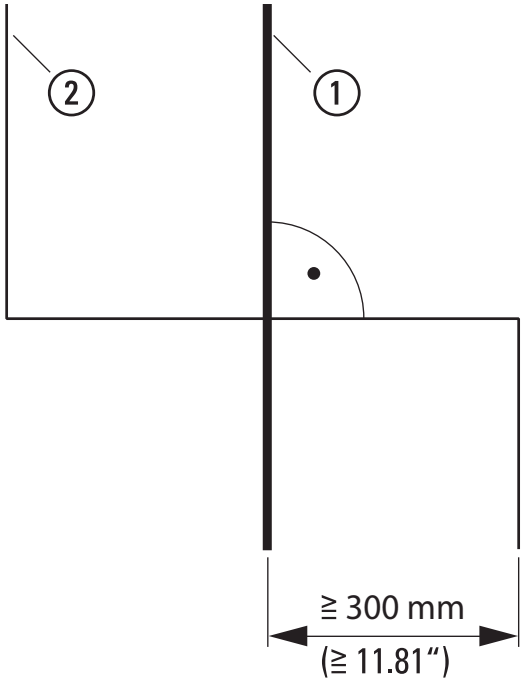


Figure 10. Routing cables for EtherNet/IP b **and mains/motor cables** a

If the system requires a parallel routing in cable ducts, a partition must be installed between the fieldbus cable b and the mains and motor cable a, in order to prevent electromagnetic interference with the fieldbus cable.

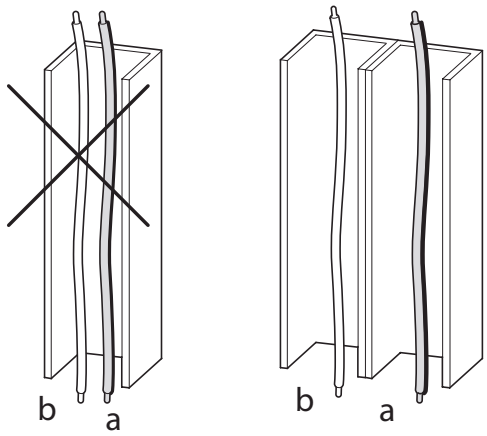


Figure 11. Separate routing in the cable duct

a Mains and motor connection cable

b ETHERNET cable

- In all cases only use approved EtherNet cables

4 Commissioning

- First, carry out all the measures for commissioning the variable frequency drive or variable speed starter as described in the relevant manual for the device
- Check the settings and installations for the switching on the PowerXL dual-port EIP communication system that are described in this manual

⚠ WARNING

Ensure that no danger will be caused by starting the motor. Disconnect the driven machine if there is a danger in an incorrect operating state.

4.1 EDS File

The properties of an EtherNet/IP card are described in the corresponding EDS file.

This is required in order to integrate the PowerXL dual-port EIP communication interface into an EtherNet/IP network.

- The EDS file can be found on the internet at Eaton.com/software

4.2 Addressing

- EIP card comes with default IP address of 192.168.1.253.
- User can change IP address of card in static mode using below options:
  1. TCP/IP Interface Object.
  2. Keypad.
  3. Webserver of MCU i.e., PowerXL DX1 Control Board in 2 places.

Configuration using TCP/IP interface Object:

User can change network parameters like IP address, network mask, gateway address in static mode by using attribute 0x05h of this object.

05h	Interface configuration	Struct of:		
	IP Address	ADINT		192.168.1.253
	Network Mask	ADINT		255.255.255.0
	Gateway Address	ADINT	Get/Set	192.168.1.1
	Name Server	ADINT		0
	Name Server 2	ADINT		0
	Domain Name	STRING		eaton.com

Using Keypad:

EIP card is detected only on Slot D. When EIP card is placed on slot D. In "Optional card" menu in Slot D EIP is detected. It shows 2 options of Monitor and Parameter.

Code	Parameter
B28.1.1	PB400 Active IP Address
B28.1.2	PB400 Active Subnet Mask
B28.1.3	PB400 Active Default Gateway
B28.1.4	PB400 MAC Address
B28.1.5	Slot D: Board Status
B28.1.6	EtherNet/IP Protocol Status
B28.1.7	Slot D: FW Version
B28.2.1	EIP CtrB IP Address Mode
B28.2.2	Static IP Address
B28.2.3	Static Subnet Mask
B28.2.4	Static Default Gateway
B28.2.5	EIP CtrB COM Timeout
B28.2.6	SlotD Fieldbus Fault Response

Webserver: Same mapping as Keypad would be seen on Webserver too.

- User can change IP address mode of EIP card using below options:
  1. TCP/IP Interface Object using attribute 0x03h

03h	Configuration Control	DWORD	Get/Set	02-dhcp, 0-static Default is 0.

  2. Keypad
  3. Webserver of MCU i.e., PowerXL DX1 Control Board.

For Keypad and webserver same mapping to be used as above

Code	Parameter
B28.1.1	PB400 Active IP Address
B28.1.2	PB400 Active Subnet Mask
B28.1.3	PB400 Active Default Gateway
B28.1.4	PB400 MAC Address
B28.1.5	Slot D: Board Status
B28.1.6	EtherNet/IP Protocol Status
B28.1.7	Slot D: FW Version
B28.2.1	EIP CtrB IP Address Mode
B28.2.2	Static IP Address
B28.2.3	Static Subnet Mask
B28.2.4	Static Default Gateway
B28.2.5	EIP CtrB COM Timeout
B28.2.6	SlotD Fieldbus Fault Response

4.3 Parameter settings

EIP does not use parameterization.

For a cyclic connection, the IO pair is established between master i.e., PLC and slave i.e., EIP comm-card.

An IO pair is established using input and output instances. Details of these instances are mentioned in sections 4.14 and 4.15.

4.4 Operation

Please observe the following notes.

⚠ DANGER

Commissioning must only be carried out by qualified technicians.

⚠ DANGER—DANGEROUS ELECTRICAL VOLTAGE

The safety instructions on pages I and II of this manual must be followed.

4.4.1 Hardware enable

- For EtherNet operation, the STO input must always be enabled. Parameterization of the basic device is also possible when the STO is triggered

4.4.1.1 DXX-NET-EIP

For PowerXL DX1 operation, the STO input must always be enabled.

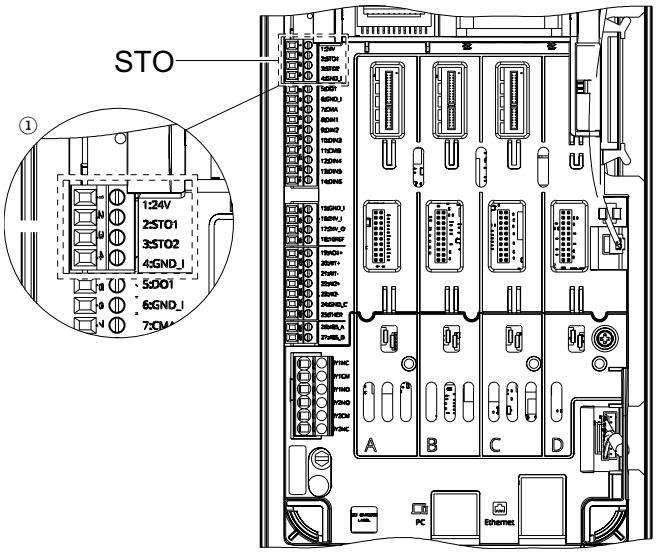


Figure 12. PowerXL DX1 control board

① STO input

The STO terminal strip must be short-circuited by a jumper if the STO function is not required.

When the function is used, the STO terminal block must be connected to the emergency power-off switch, safety relay or PLC, etc.

The STO function must always be switched on in order to apply the closedcircuit principle.

Without the connection of a control voltage STO terminal block, the control section remains locked.

- Further details on STO circuitry can be found in the MN0100068EN manual

4.4.1.2 EtherNet/IP communications

The EtherNet/IP communication interface features standard EtherNet/IP communication, allowing you to easily manage drive control and data over EtherNet/IP networks.

EtherNet/IP communication interface features:

- Provides a means to control, configure and collect data over an Ethernet network
- 10/100 Mbps, full duplex operation
- Explicit messaging (for example, parameter read/write)
- Diagnostics, device items and events

Every device connected to an Ethernet network has two identifiers: a MAC address and an IP address. The MAC address (address format: 00.D0.AF.xx.yy.zz) is unique to the application and cannot be changed. The EtherNet/IP board's MAC address can be found on the sticker attached to the board.

In a local network, IP addresses are determined by the network server using DHCP protocol. The user can also manually define the network address for the drive as long as all units connected to the network are given the same network portion of the address. For more information about IP addresses, contact your network administrator.

Overlapping IP addresses can cause conflicts between appliances. For more information about setting IP addresses, see "Manual IP Address Configuration" on **page 24**.

Note: EtherNet/IP is a trademark of the Open DeviceNet Vendor Association (ODVA).

4.4.1.3 EtherNet/IP specifications

Table 3. EtherNet/IP technical data

General	Description	Specification
Ethernet connections	Interface	RJ-45 connector
Communications	Transfer cable	Shielded twisted pair
	Speed	10/100 Mbps
	Duplex	Half/full
Default static IP Configurations.	Default IP–address Mode	Static IP
	Default static IP address	192.168.1.253
	Default network mask	255.255.255.0
	Default gateway address	192.168.1.1

4.4.1.4 EtherNet/IP overview

EtherNet/IP was introduced in 2001 and today is the most developed, proven and complete industrial Ethernet network solution available for manufacturing automation. EtherNet/IP is a member of a family of networks that implements the Common Industrial Protocol (CIP) at its upper layers. CIP encompasses a comprehensive suite of messages and services for a variety of manufacturing automation applications, including control, safety, synchronization, motion, configuration and information.

As a truly mediaindependent protocol that is supported by hundreds of vendors around the world, CIP provides users with unified communication architecture throughout the manufacturing enterprise.

There are two common use cases of Ethernet—devices are "human to machine" and "machine to machine." Basic features are presented in the pictures below.

1. Human to machine (graphical user interface, relatively slow communication).

User Interface

Figure 13. Human to machine user interface

2. Machine to machine (industrial environment, fast communication) Industrial Environment.

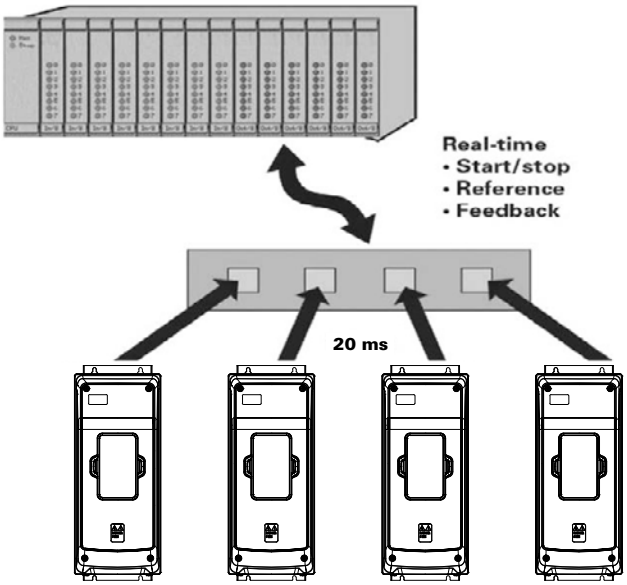


Figure 14. Machine to machine (industrial environment, fast communication)

4.4.1.5 Connections and wiring

The EtherNet/IP board supports 10/100 Mb speeds in both full and half-duplex modes. The boards must be connected to the Ethernet network with a shielded CAT-5e cable.

Use only industrial standard components in the network and avoid complex structures to minimize the length of response time and the amount of incorrect dispatches. It is often a good practice to use a subnet that is different from other devices not related to the drive control.

Figure 15. CAT-5e cable

4.4.2 Commissioning

4.4.2.1 Keypad EtherNet/IP communication menu

DHCP

The drives EtherNet/IP communication supports DHCP for easier network configuration. Dynamic Host Configuration Protocol (DHCP) is a network protocol that is used to configure network devices so that they can communicate on an IP network. As a DHCP client, EtherNet/IP negotiates with the DHCP server to determine its IP address and obtain any other initial configuration details it needs for network operation.

IP address

IP is divided into four parts. (Part = Octet) Default Static IP Address is 192.168.1.253

Communication timeout

Defines how much time can pass from the last received message from the client device before fieldbus fault is generated. Default communication timeout is 10 seconds.

Note: If the network cable is broken from EtherNet/IP slot, a fieldbus fault will be generated post configured communication timeout [B28.2.5 EIP CtrB COM Timeout].

Static IP address

In most cases the user may want to establish a Static IP Address for the drives EtherNet/IP based on their network configuration. Static IP address default configurations are as defined in "EtherNet/IP network settings" table, provided in "Connections and Wiring" section. The user can manually define the network address for the EtherNet/IP as long as all units connected to the network are given the same network portion of the address. In these situations the user will need to manually set the IP Address in the drive by using the drive keypad. Be aware that overlapping IP addresses can cause conflicts between devices on the network. For more information about selecting IP addresses, contact your network administrator.

4.4.2.2 Manual IP address configuration

Using the PowerXL drive keypad

Using the drive keypad to set the IP Address manually.

1. Select IP addressing mode as Static IP. Static IP mode configurations will be loaded.

Note: A change in the IP address mode will reset the PowerXL to make the changes effective.

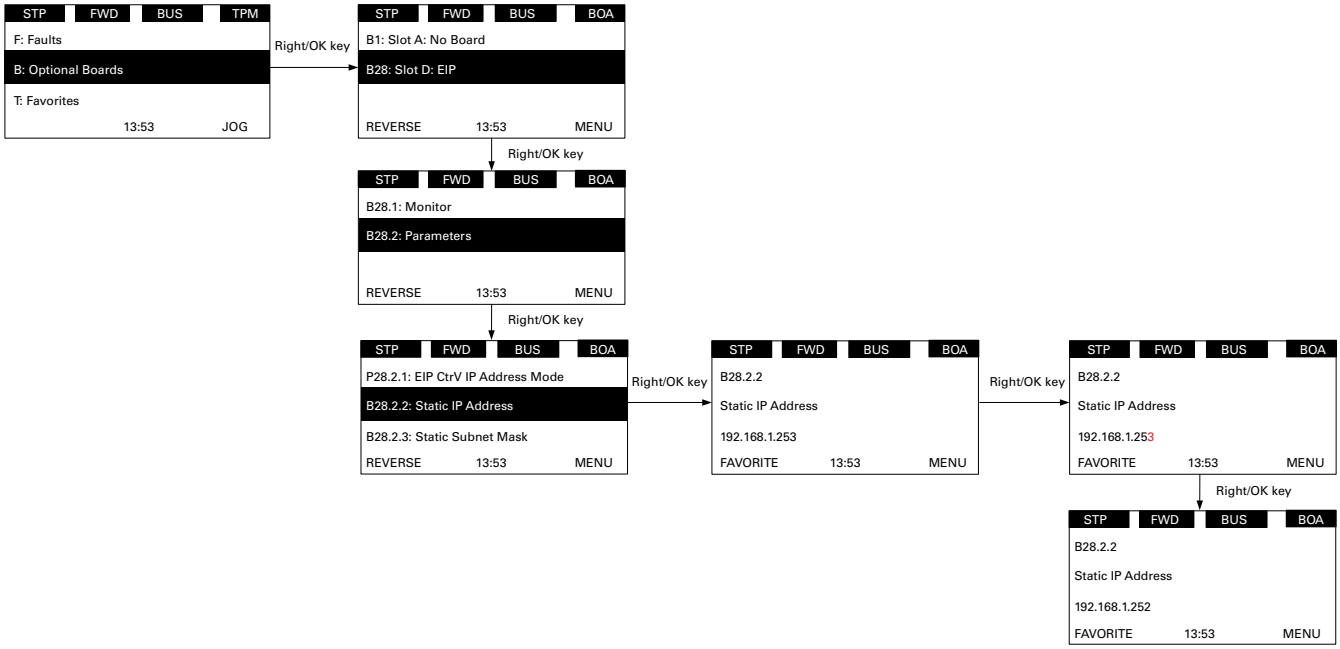


Figure 17. PowerXL DX1 Static IP mode

2. Using drive keypad, set the IP address to the desired address setting by:
   - Setting Static IP Address

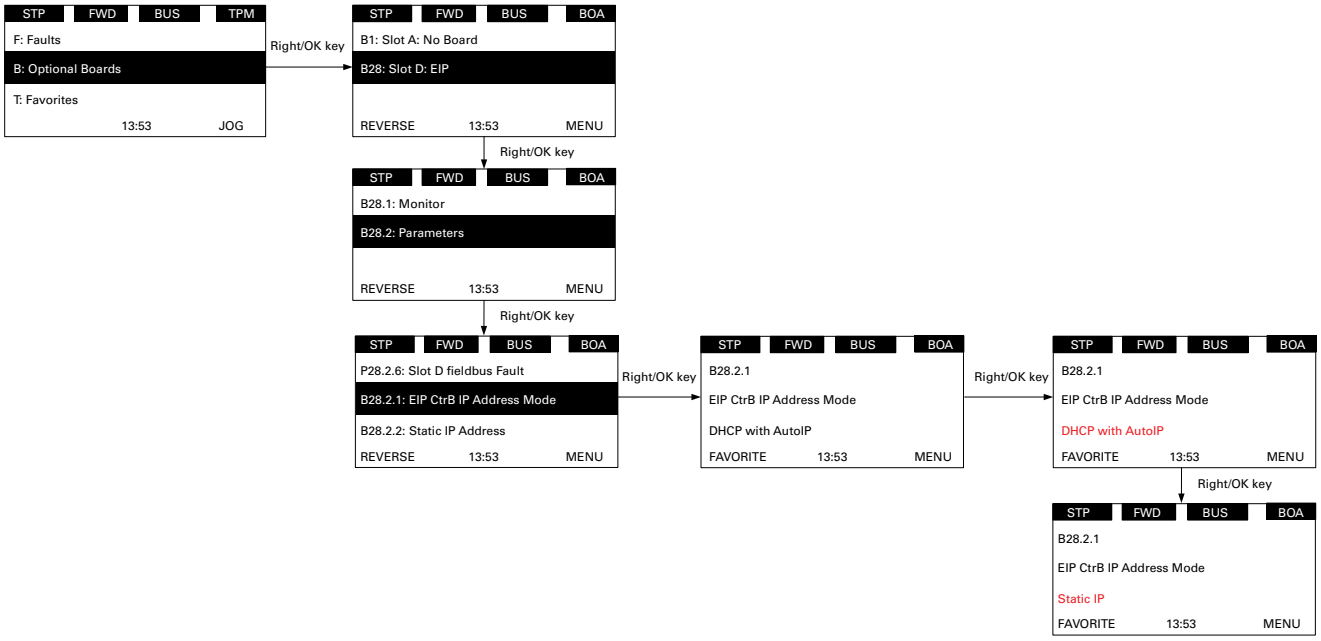


Figure 18. PowerXL DX1 Static IP address

   - Setting Static Subnet Mask
   - Setting Static Default Gateway
3. Make note of the changed IP Address.
4. Using drive keypad, read "Active IP Address", "Active Subnet Mask", "Active Default Gateway" parameters to ensure that IP address has been set to desired setting.

⚠ DANGER

In certain applications, additional measuring and monitoring equipment may be needed in order to meet the requirements of the system's safety function.

The STO function does not provide motor braking, and the inverter braking function alone cannot be claimed as a fail-safe method.

If a motor braking function is required, an appropriate safety relay and/or a mechanical braking system or a similar method must be used.

⚠ DANGER

The "STO wiring" must be protected against unintended short-circuits and unintended tampering and modifications.

It must be ensured that the STO input signal is in a safe operating state.

⚠ DANGER

Ensure proper grounding and select cables according to local legislation or regulations.

For application examples, refer to the Eaton Safety Manual PU05907001Z.

4.4.2.3 DXX-NET-EIP

The protocol that controls a motor is called controlling protocol and all other protocols are monitoring protocols.

If user is using EtherNetIP to control motor below settings are mandatory:

Remote control place: EIP_Fieldbus

Remote reference: Fieldbus reference

Local/Remote selection: Remote

Parallel communication via EtherNet, keypad, or a PC cable connection is always possible.

A modification of parameter values via InControl or the operating unit requires a serial (RS-485) or Modbus TCP connection.

However, realtime editing mode via InControl is not recommended, as this would overload the processor.

4.5 List of object classes

The Communication Interface shall support the following object classes.

Table 5: List of object classes

Class	Object	Remark
0x01	Identity Objects	CIP Required Object
0x02	Message Router Object	CIP Required Object
0x04	Assembly Object	CIP Required Object
0x06	Connection Manager Object	CIP Required Object
0x28	Motor Data Object	CIP Required Object
0x29	Control Supervisor Object	CIP Required Object
0x2A	AC/DC Drive Object	CIP Required Object
0x47	Device Level Ring Object	CIP Object
0x48	Quality of Service Object	CIP Object
0xF5	TCP/IP Interface Object	CIP Required Object
0xF6	Ethernet Link Object	CIP Required Object
0x109	LLDP Management Object	ODVA Required object for multi-port devices for certification
0xA0	Vendor Parameters Object	Vendor Specific Object
0xA1	Vendor Parameters Object	Vendor Specific Object
0xA2	Vendor Parameters Object	Vendor Specific Object

Note: For commissioning when card is plugged in Slot D , EIP gets detected automatically. When card is set on slot other than D, Card plug slot error is shown on system.

Reaction after communication loss when EIP is controlling protocol:

1. EIP is controlling protocol. By default Fieldbus fault reference is set to Fault. On communication loss Slot D Fieldbus fault would trigger.
2. User can set Fieldbus Fault response to any value out of below mentioned enum:

Enums for Response to SlotD Fieldbus Fault (DCI_ubSlotDFieldbusFaultProtect)

Enum#	Code Define	Description
0	NO_ACTION	No Action
1	WARNING	Warning
2	FAULT	Fault
3	FAULT_COAST	Fault
4	WARNING_COAST	Warning
5	WARNING_Auto_Switch_To_Local	Warning
6	WARNING_Auto_Switch_To_Preset_S...	Warning

3. Similarly, if Idle fault has occurred, then system would show Idle fault if fieldbus fault response is Fault.

Reaction after communication loss when EIP is monitoring protocol:

1. EIP is monitoring protocol. By default Fieldbus fault reference is set to Warning. On communication loss Slot D Fieldbus fault would trigger as Warning.
2. User can set Fieldbus Fault response only to Warning or No Action out of mentioned enum:

Enums for Response to SlotD Fieldbus Fault (DCI_ubSlotDFieldbusFaultProtect)

Enum#	Code Define	Description
0	NO_ACTION	No Action
1	WARNING	Warning
2	FAULT	Fault
3	FAULT_COAST	Fault
4	WARNING_COAST	Warning
5	WARNING_Auto_Switch_To_Local	Warning
6	WARNING_Auto_Switch_To_Preset_S...	Warning

3. Similarly, if Idle fault has occurred, then system would show Idle fault as Warning.

Note: Fault occurs only when NetCtrl/NetRef or both bits are set.

4.6 CIP Common required objects

4.6.1 Identity object class 0x01

Device shall support Identity Object Class 0x01 as given in table below.

This object provides identification of and general information about the device and optionally its subsystems.

Table 6: Identity object class

Class attributes				
Id	Description	Data type	Access rule	Remarks / Default
01h	Revision	UINT	Get	2
02h	Max Instances	UINT	Get	1
03h	Number of instances	UINT	Get	1
06h	Maximum ID Class Attribute	UINT	Get	7
07h	Maximum ID Instance Attribute	UINT	Get	19
Class services				
Id	Service			
0Eh	Get_Attribute_Single			
01h	Get_Attribute_All			
Instance attributes				
Id	Description	Data type	Access rule	
01h	Vendor ID	UINT	Get	68 (Eaton Vendor ID)
02h	Device Type	UINT	Get	2 (AC Drive)
03h	Product Code	UINT	Get	0x3032
04h	Revision	Struct of:	Get	
04h	Major Revision	USINT	Get	1
04h	Minor Revision	USINT	Get	1
05h	Status	WORD	Get	0x34 – Default
06h	Serial Number	UDINT	Get	Card specific serial number would be obtained.
07h	Product name	Short_string	Get	PowerXL VFD EIP comm. card
Instance Services				
Id	Service			
01h	Get_Attributes_All			
05h	Reset			0 and 1
0Eh	Get_Attribute_Single			

4.6.2 Message router object 0x02

The Message Router Object provides a messaging connection point through which a client may address a service to any object residing in the physical device.

Class attributes				
Id	Description	Data Type	Access Rule	Remarks / Default
01h	Revision	UINT	Get	1
02h	Max Instances	UINT	Get	1
03h	Number of instances	UINT	Get	1
06h	Maximum ID Class Attribute	UINT	Get	7
07h	Maximum ID Instance Attribute	UINT	Get	0
Class services				
Id	Service			
0Eh	Get_Attribute_Single			

Note: Message Router class has no instances. So, instance services and instance attributes are not supported.

4.6.3 Connection manager object, Class 0x06

Device shall support Connection Manager Object, Class 0x06.

The Connection Manager Class allocates and manages the internal resources associated with both I/O and Explicit Messaging Connections.

Class attributes				
Id	Description	Data type	Access rule	Remarks / Default
01h	Revision	UINT	Get	1
02h	Max Instances	UINT	Get	1
03h	Number of instances	UINT	Get	1
06h	Maximum ID Class Attribute	UINT	Get	7
07h	Maximum ID Instance Attribute	UINT	Get	0
Class services				
Id	Service			
0Eh	Get_Attribute_Single			
Instance services				
Id	Service			
0Eh	Get_Attribute_Single			
0x10	Set Attribute Single			
0x4E	Forward Close			
0x54	Forward Open			

4.6.4 TCP/IP Interface object class 0xF5

Device shall support TCP/IP Interface Object, Class 0xF5 as given in table below.

The TCP/IP Interface Object provides the mechanism to configure a device's TCP/IP network.

Table 7: TCP/IP Interface object class

Class attributes

Id	Description	Data Type	Access Rule	Remarks/Default
01h	Revision	UINT	Get	4
02h	Max Instance	UINT	Get	1
03h	Number of instances	UINT	Get	1
06h	Maximum ID Class Attribute	UINT	Get	7
07h	Maximum ID Instance Attribute	UINT	Get	14

Class services

Id	Service
0Eh	Get_Attribute_Single

Instance attributes

Id	Description	DataType	Access Rule	Remarks/Default
01h	Status	DWORD	Get	1
02h	Configuration Capability	DWORD	Get	94h
03h	Configuration Control	DWORD	Get/Set	02-dhcp, 0- static Default is 0.
04h	Physical Link	Struct of:	Get	
	Path Size	UINT	Get	02
	Path	Padded EPATH	Get	20 F6 24 01
05h	Interface Configuration	Struct of:	Get/Set	
	IP Address	UDINT	Get/Set	192.168.1.253
	Network Mask	UDINT	Get/Set	255.255.255.0
	Gateway Address	UDINT	Get/Set	192.168.1.1
	Name Server	UDINT	Get/Set	0
	Name Server 2	UDINT	Get/Set	0
	Domain Name	STRING	Get/Set	eaton.com
06h	Host Name	STRING	Get/Set	PowerXL
08h	TTL Value	USINT	Get	1
09h	Multicast Configuration	Struct of:	Get	
	Alloc Control	USINT	Get	0
	Reserved	USINT	Get	0
	Number of Mcast	UINT	Get	0x20
	Starting Multicast Address	DWORD	Get	239.192.32.96 Note: This address might change as multicast allocation is 0 i.e., default multicast address algorithm is used.
0Ah	Select ACD	BOOL	Set/Get	1
0Bh	Last Conflict Detected	Struct of:	Set/Get	
	ACD activity	USINT	Set/Get	0
	Remote MAC	Array of 6 USINT	Set/Get	0
	ARP PDU	Array of 28 USINT	Set/Get	0
0Dh	Encapsulation Inactivity Timeout	UINT	Set/Get	0 = Disable 1-3600 = timeout in seconds 120 = default

Instance services

Id	Service
01h	Get_Attributes_All
0Eh	Get_Attribute_Single
10h	Set_Attribute_Single

Attribute Configuration Control supports only value 0 (device is using configuration values which are stored in non-volatile memory).

Attribute Host Name is used just for information purpose.

Set service for instance attribute 3,5,6,0x0A and 0xB is applicable only in Static Mode.

4.6.5 Ethernet link object class 0xF6

Device shall support Ethernet Link Object, Class 0xF6 as given in table below.

The Ethernet Link Object maintains link-specific counters and status information for an IEEE 802.3 communications interface.

Table 8: Ethernet link object class

Class attributes				
Id	Description	Data Type	Access Rule	Remarks/Default
01h	Revision	UINT	Get	4
02h	Max Instance	UINT	Get	2
03h	Number of Instances	UINT	Get	2
06h	Maximum ID Class Attribute	UINT	Get	7
07h	Maximum ID Instance Attribute	UINT	Get	768
Class services				
Id	Service			
0Eh	Get_Attribute_Single			
Instance attributes				
Id	Description	Data Type	Access Rule	
01h	Interface Speed	UDINT	Get	0x64 00 00 00
02h	Interface Flags	DWORD	Get	0x0F for full duplex and 0x09 for half duplex
03h	Physical Address	Array of 6 USINT	Get	MAC address of card
06h	Interface control Struct of Control bits & Forced Interface Speed	STRUCT of WORD & UINT	Get	01 00 00 00
07h	Interface Type	USINT	Get	2
08h	Interface State	USINT	Get	1
09h	Admin State	USINT	Get/Set	01 (Other value write is invalid)
0Ah	Interface Label	Short String	Get	Instance 1: Ascii code of “Port 1” Instance 2: Ascii code of “Port 2”
0Bh	Interface Capability STRUCT of: Capability bits and Speed/Duplex options	STRUCT of: DWORD and Array of STRUCT of UINT, USINT	Get	Indication of capabilities of the interface 10 / HD, 10 / FD, 100 / HD 100 / FD 00 00 00 04 0A 00 00 0A 00 01 64 00 00 64 00 01 (Values in Hex)
Instance services				
Id	Service			
01h	Get_Attribute_All			
10h	Set_Attribute_Single			
0Eh	Get_Attribute_Single			

Attribute values are same for Instance 1 and Instance 2, only Attribute A is different.

4.6.6 Assembly object, class 0x04

Device shall support Assembly Object, Class 0x04 as given in table below using Class 1 and Class 3 connection.

Table 9: Assembly object class

Class attributes				
Id	Description	Data type	Access rule	Remarks/Default
01h	Revision	UINT	Get	2
02h	Max Instance	UINT	Get	0X83
03h	Number of Instances	UINT	Get	9
06h	Maximum ID Class Attribute	USINT	Get	7
07h	Maximum ID Instance Attribute	USINT	Get	4
Class services				
Id	Service			
0Eh	Get_Attribute_Single			
Instance attributes				
Id	Description	Data Type	Access rule	
03h	Data	Array of BYTES	Get/Set	Current process data snapshot
04h	Size	UINT	Get	Process data size in number of bytes
Instance services				
Id	Service			
10h	Set_Attribute_Single			
0Eh	Get_Attribute_Single			

If Class 1 connection has been established, then Explicit Messages cannot be used to control Output Data. However, this restriction doesn't apply for IO Data reading.

4.6.7 Motor data object, class 0x28

Device shall support Motor Data Object, Class 0x28 as given in table below.

This object serves as a database for motor parameters.

Table 10: Motor data object

Class attributes					
Id	Description	NV	Data type	Access Rule	Remarks/Default
1	Revision	NV	UINT	Get	1
2	Max Instance	NV	UINT	Get	3
3	Number of Instances	NV	UINT	Get	3
Class services					
Id	Service				
0Eh	Get Attribute Single				
Instance 1 attributes					
Id	Description	NV	Data Type	Access Rule	Default,Min,Max
03h	Motor Type	NV	USINT	Get	Squirrel cage Induction Motor (7)
06h	Rated Current	NV	UINT	Get	126
07h	Rated Voltage	NV	UINT	Get	380
09h	Rated Frequency	NV	UINT	Get	50
0Ch	Pole Count	NV	UINT	Get	4
0Fh	Base Speed	NV	UINT	Get	1440
Instance 2 attributes					
Id	Description	NV	Data Type	Access Rule	Remarks/Default
03h	Motor Type	NV	USINT	Get	Squirrel cage Induction Motor (7)
06h	First Rated Current	NV	UINT	Get / Set	0,0,4160
07h	First Rated Voltage	NV	UINT	Get / Set	230,180,690
09h	First Rated Frequency	NV	UINT	Get / Set	50,8,400
0Ch	Pole Count	NV	UINT	Get	4
0Fh	First Base Speed	NV	UINT	Get / Set	1450,1,24000
Instance 3 attributes					
Id	Description	NV	Data Type	Access Rule	Remarks/Default
03h	Motor Type	NV	USINT	Get	Squirrel cage Induction Motor (7)
06h	Second Rated Current	NV	UINT	Get / Set	0,0,4160
07h	Second Rated Voltage	NV	UINT	Get / Set	230,180,690
09h	Second Rated Frequency	NV	UINT	Get / Set	50,8,400
0Ch	Pole Count	NV	UINT	Get	4
0Fh	Second Base Speed	NV	UINT	Get / Set	1450,1,20000
Instance services					
Id	Service				
0Eh	Get_Attribute_Single				
10h	Set_Attribute_Single				

Note: Motor Type default value is Squirrel cage Induction Motor (7). But it can be PM Synchronous Motor (3) depending on type of motor selected.

4.7 Control supervisor object, class 0x29

Device shall support Control Supervisor Object, Class 0x29 as given in table below.

This object models all the management functions for devices within the "Hierarchy of Motor Control Devices". The behavior of motor control devices is described by the State Transition Diagram.

Table 11: Control supervisor object

Class attributes						
Id	Description	NV	Data Type	Access Rule	Default	Range
01h	Revision	NV	UINT	Get	1	--
02h	Max Instance	NV	UINT	Get	1	--
03h	Number of Instances	NV	UINT	Get	1	--
Class services						
Id	Service			Requirements		
0Eh	Get Attribute Single					
Instance attributes						
Id	Description	NV	Data Type	Access Rule		
03h	Run1	V	BOOL	Get / Set	0	0 – 1
04h	Run2	V	BOOL	Get / Set	0	0 – 1
05h	NetCtrl	V	BOOL	Get / Set	0	0 – 1

Class attributes						
06h	State	V	USINT	Get	0	0 – 7
07h	Running1	V	BOOL	Get	0	0 – 1
08h	Running2	V	BOOL	Get	0	0 – 1
09h	Ready	V	BOOL	Get	0	0 – 1
0Ah	Faulted	V	BOOL	Get	0	0 – 1
0Bh	Warning	V	BOOL	Get	0	0 – 1
0Ch	FaultRst	V	BOOL	Get / Set	0	0 – 1
0Fh	CtrlFromNet	V	BOOL	Get	0	0 – 1
0Dh	Active Fault Code	V	UINT	Get	0	0 – 65535
6Ch	Comm Idle Action Value	NV	USINT	Get / Set	2	0 – 2
6Dh	Comm TimeOut	NV	UINT	Get / Set	10 Sec	0-60 Sec
Instance services						
Id	Service					
0Eh	Get_Attribute_Single					
10h	Set_Attribute_Single					
05h	Reset Service				Type 0	

When both Run (Run1 & Run2) attributes set then no action.

4.8 AC/DC Drive Object, Class 0x2A

Device shall support AC/DC Drive Object, Class 0x2A as given in table below.

This object models the functions specific to an AC or DC Drive. e.g., speed ramp, torque control etc.

Table 12: AC/DC Drive Object

Class attributes					
Id	Description	NV	Data type	Access Rule	Default
01h	Revision	NV	UINT	Get	1
02h	Max Instance	NV	UINT	Get	1
03h	Number of Instances	NV	UINT	Get	1
Class services					
Id	Service				
0Eh	Get_Attribute_Single				
Instance attrbutes					
Id	Description	NV	Data Type	Access Rule	Def,Min,Max
03h	AtReference	V	BOOL	Get	0
04h	NetRef	V	BOOL	Get / Set	0
06h	DriveMode	V	USINT	Get	0
07h	SpeedActual	V	INT	Get	0
08h	SpeedRef	V	INT	Get / Set	0
0Bh	TorqueActual	V	INT	Get	0
0Ch	TorqueRef	V	INT	Get / Set	0
1Dh	RefFromNet	V	BOOL	Get	0
12h	Accel Time	V	UINT	Get	468,1,46875
13h	Decel Time	V	UINT	Get	468,1,46875

Class attributes					
0Ah	Current Limit	NV	INT	Get / Set	345
64h	Accel Time 1	NV	UINT	Get / Set	468,1,46875
65h	Accel Time 2	NV	UINT	Get / Set	468,1,46875
66h	Decel Time 1	NV	UINT	Get / Set	468,1,46875
67h	Decel Time 2	NV	UINT	Get / Set	468,1,46875
1Ch	Time Scale	NV	SINT	Get / Set	6,0,127
Instance services					
Id	Service				
0Eh	Get_Attribute_Single				
10h	Set_Attribute_Single				

Note: Final Accel Time = Accel Time 1 * (2 to power Time Scale)

4.9 LLDP management object, class code: 0x109

The LLDP Management Object function as an interface to configure aspects of the LLDP protocol that is running in the device. All information about neighboring devices that is stored in the data tables of the LLDP protocol stack can be accessed via the SNMP LLDP MIB (OID 1.0.8802.1.1.2.1).

Class attributes

Id	Description	Data Type	Access Rule	Remarks/Default
01h	Revision	UINT	Get	1
02h	Max Instance	UINT	Get	1
03h	Number of Instances	UINT	Get	1
06h	Maximum ID Class Attribute	USINT	Get	7
07h	Maximum ID Instance Attribute	USINT	Get	5

Class services

Id	Service
0Eh	Get_Attribute_Single

Instance attributes

Id	Description	Data Type	Access Rule	
1	LLDP Enable	STRUCT of UINT and Array of Byte	Get/Set	All ports are enabled
2	msgTxInterval	UINT	Get/Set	30 sec 0 = Reserved, 1 - 3600 = Message Transmission Interval for LLDP frames,
3	msgTxHold	USINT	Get/Set	4 sec 0 = Reserved, 1-100 = Message Transmission Multiplier for LLDP Frames,
4	LLDP Datastore	WORD	Get	(0x02) (SNMP)
5	Last Change	UDINT	Get	0 A counter in seconds from the last time any entry in the local LLDP database changed or power up.

Instance services

Id	Service
10h	Set_Attribute_Single
0Eh	Get_Attribute_Single
01h	Get_Attribute_All

4.10 Device level ring object, class code: 0x47

The Device Level Ring (DLR) Object provides the configuration of the DLR protocol. DLR is used for Ethernet Ring topology.

Class attributes

Id	Description	Data Type	Access Rule	Remarks/Default
01h	Revision	UINT	Get	3
02h	Max Instance	UINT	Get	1
03h	Number of Instances	UINT	Get	1
06h	Maximum ID Class Attribute	USINT	Get	7
07h	Maximum ID Instance Attribute	USINT	Get	12

Class services

Id	Service
0Eh	Get_Attribute_Single

Instance attributes

Id	Description	Data Type	Access Rule	
1	Network Topology	USINT	Get	0 – Linear
2	Network Status	USINT	Get	0 – Normal
10	Active Supervisor	STRUCT of: UDINT and ARRAY of 6 USINTs	Get	0
12	Capability flags	DWORD	Get	0x82 (Beacon based Ring Node, Flush Table frame support)

Instance services

Id	Service
01h	Get_Attribute_All
0Eh	Get_Attribute_Single

4.11 Quality of service, class code: 0x48

The Quality of Service (QoS) Object provides the configuration of frame priorities. Ethernet frame priorities are set at the Differentiate Service Code Points (DSCP).

Class attributes

Id	Description	Data Type	Access Rule	Remarks/Default
01h	Revision	UINT	Get	1
02h	Max Instance	UINT	Get	1
03h	Number of Instances	UINT	Get	1
06h	Maximum ID Class Attribute	USINT	Get	7
07h	Maximum ID Instance Attribute	USINT	Get	8

Class services

Id	Service
0Eh	Get_Attribute_Single

Instance attributes

Id	Description	Data Type	Access Rule	Default
2	DSCP PTP Event	USINT	Get/Set	59
3	DSCP PTP General	USINT	Get/Set	47
4	DSCP Urgent	USINT	Get/Set	55
5	DSCP Scheduled	USINT	Get/Set	47
6	DSCP High	USINT	Get/Set	43
7	DSCP Low	USINT	Get/Set	31
8	DSCP Explicit	USINT	Get/Set	27

Instance services

Id	Service
01h	Get_Attribute_All
0Eh	Get_Attribute_Single

Note: As per EIP Specification Volume 2 Section 5-4.7.2 range of attribute 2-8 is 0 to 63.

4.12 Vendor specific objects

Device shall support Vendor Parameters Object, Class 0xA0, 0XA1 and 0XA2 as given in table below. Vendor Parameter Object is used in order to get access to all Drive Parameters.

Class attributes				
Id	Description	Data Type	Access Rule	Remarks/Default
01h	Revision	UINT	Get	1
02h	Max Instance	UINT	Get	1
03h	Number of Instances	UINT	Get	1
Class services				
Id	Service			
0Eh	Get_Attribute_Single			
Instance attributes				
Id	Description		Access Rule	
Varies for different objects				
Instance services				
Id	Service			
0Eh	Get_Attribute_Single			
10h	Set_Attribute_Single			

Vendor parameter object	Start attribute no.	End attribute no.	Total no. of attributes
0xA0	1	250	250
0xA1	1	250	250
0xA2	1	229	246

The detailed list of Vendor parameters classes and its attributes can be found in 4.18 Parameter list.

4.13 Assembly Instances implemented by control board

4.13.1 Output instances

Device shall support Output Instances as given in table below.

4.13.1.1 Assembly instance 20

Table 13: Assembly instance 20

Instance 20 (Output) [Length = 4 Bytes]								
Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0						FaultReset		RunFwd
1								
2	Speed Reference (Low Byte), rpm							
3	Speed Reference (High Byte), rpm							

Assembly instance 20 is default instance having speed reference of 2 bytes. Here speed should be given without scaling by 100. For e.g., if speed reference is 1200 rpm, it should be given as 1200 rpm only.

4.13.1.2 Assembly instance 121

Instance 121 (Output) [Length = 8 Bytes]								
Byte	Bit 7	Bit 6	Bit .5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Bypass	NetRef	NetCtrl	INCH On/Off	Jog ON/OFF	FaultReset	RunRev	RunFwd
1	Reserved	Reserved	Reserved	Reserved	FBInput 4	FBInput 3	FBInput 2	FBInput 1
2	Speed Reference in RPM (BYTE 0) LSB 1st BYTE							
3	Speed Reference in RPM (BYTE 1) 2nd byte							
4	Speed Reference in RPM (BYTE 2) 3rd byte							
5	Speed Reference in RPM (BYTE 3) MSB 4th Byte							
6	Torque Reference %							
7	Torque Reference %							

- Byte 0 – Byte 1: Control word
- Byte 2- Byte 5: Speed reference in RPM and allowed scaling is 0.01 %
- Byte 6 – Byte 7: Torque Reference in % and allowed scaling is 0.1 %

Note:

- Below settings are mandatory for setting torque reference:
- Parameter DCI_ubTorqueRefSel (Modbus register:302) should be set as FB Torque Ref

Refer to section 4.16 Generic comments for details of all bytes.

4.13.1.3 Assembly instance 122

Instance 122 (Output) [Length = 14 Bytes]

Byte	Bit 7	Bit 6	Bit .5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Bypass	NetRef	NetCtrl	INCH On/Off	Jog ON/OFF	FaultReset	RunRev	RunFwd
1	Reserved	Reserved	Reserved	Reserved	FBInput4	FBInput3	FBInput2	FBInput1
2	Speed Reference in RPM (BYTE 0) LSB 1st BYTE							
3	Speed Reference in RPM (BYTE 1) 2nd byte							
4	Speed Reference in RPM (BYTE 2) 3rd byte							
5	Speed Reference in RPM (BYTE 3) MSB 4th Byte							
6	PDSELB3	PDSELB2	PDSELB1	PDSELB0	PDSELA3	PDSELA2	PDSELA1	PDSELA0
7	NA	NA	NA	NA	NA	NA	NA	NA
8	Process data IN1 (LOW BYTE)							
9	Process data IN1 (HIGH BYTE)							
10	Process data IN9 (1st LOW BYTE)							
11	Process data IN9 (2nd BYTE)							
12	Process data IN9 (3rd BYTE)							
13	Process data IN9 (4th MSB BYTE)							

- Byte 0 – Byte 1: Control word. Refer section 4.16 Generic comments for details
- Byte 2 – Byte 5: Speed reference. Refer section 4.16 Generic comments for details
- Byte 6: PD Selector:
  - 2 parameters can be monitored at a time using PDSELXX
  - Bits PDSELx0–PDSELx3 in each "nibble" of Byte 6 are used to select which FBProcessDataOUT (1– 12) is "read" back to PLC. That is integer 1 through 12 converted to binary Bit 0 through Bit 3. Any parameter or monitored value can be read if it references a specific ID number. Whichever ProcessDataOutput selector used from 1 through 12 dictates what bits are used in Byte 6. Refer section 5.1 for FBProcessDataOUT variables
- Byte 8 – Byte 9: Process Data IN1 could be used to input 2-byte or 1-byte system parameter
- Byte 10 – Byte 13: Process Data IN9 could be used to input 1 byte or 2 byte or 4-byte system parameter

Note:

- Using Process Data IN1 and Process Data IN 9 at a time only 2 system parameters could be updated
- Process Data is sent to the Drive independently from the NetRef and NetCtrl bits settings

4.13.1.4 Assembly instance 123

Instance 123 (Output) [Length = 32 Bytes]

Byte	Bit 7	Bit 6	Bit .5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Bypass	NetRef	NetCtrl	INCH On/Off	Jog ON/OFF	FaultReset	RunRev	RunFWD
1	Reserved	Reserved	Reserved	Reserved	FBInput 4	FBInput 3	FBInput 2	FBInput 1
2	Reserved							
3	Reserved							
4	FBSpeedReference (Low Byte) in % *							
5	FBSpeedReference (High Byte) in % *							
6	Torque Reference (Low Byte), %							
7	Torque Reference (High Byte), %							
8	Process data IN1 (LOW BYTE)							
9	Process data IN1 (HIGH BYTE)							
10	Process data IN2 (LOW BYTE)							
11	Process data IN2 (HIGH BYTE)							
12	Process data IN3 (LOW BYTE)							
13	Process data IN3 (HIGH BYTE)							
14	Process data IN4 (LOW BYTE)							
15	Process data IN4 (HIGH BYTE)							
16	Process data IN9 (1st LOW BYTE)							
17	Process data IN9 (2nd BYTE)							
18	Process data IN9 (3rd BYTE)							
19	Process data IN9 (4th MSB BYTE)							
20	Process data IN 10 (1st LOW BYTE)							
21	Process data IN 10 (2nd BYTE)							
22	Process data IN 10 (3rd BYTE)							
23	Process data IN 10(4th MSB BYTE)							
24	Process data IN 11 (1st LOW BYTE)							
25	Process data IN 11 (2nd BYTE)							
26	Process data IN 11(3rd BYTE)							
27	Process data IN 11(4th MSB BYTE)							
28	Process data IN 12 (1st LOW BYTE)							
29	Process data IN 12 (2nd BYTE)							
30	Process data IN 12(3rd BYTE)							
31	Process data IN 12(4th MSB BYTE)							

- Byte 0 – Byte 1: Control word. Refer to section 4.16 Generic comments for details
- Byte 2 – Byte 3: Reserved
- Byte 4 – Byte 5: Speed reference is in %
  * This is the reference 1 to the frequency converter. Used normally as Speed reference. The allowed scaling is 0...10000. In the application, the value is scaled in percentage of the frequency area between set minimum and maximum frequency. 0 = 0.00 % 10000 = 100.00 %
- Byte 6 – Byte 7: Torque Reference is in % and allowed scale is 0.1%. Refer to section 4.16 Generic comments for details

Note: To set Torque reference below settings are mandatory

- Parameter DCI_ubTorqueRefSel (Modbus register:302) should be set as FB Torque Ref

- Byte 8 – Byte 15: ProcessDataIN1-ProcessDataIN4: could be used to input 1-byte or 2-byte system parameter
- Byte 16 – Byte 31: ProcessDataIN9-ProcessDataIN12: could be used to input 1-byte or 2-byte or 4-byte system parameter

Note:

- Using ProcessDataIN1-ProcessDataIN4 at a time only 4 system parameters could be updated
- Using ProcessDataIN9-ProcessDataIN12 at a time only 4 system parameters could be updated

4.14 Input instances

Device shall support Input Instances as given in table below.

4.14.1 Assembly instance 70

Table 14: Assembly instance 70

Instance 70 (Input) [Length = 4 Bytes]

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0						Running1		Faulted
1								
2	Speed Actual (Low Byte), rpm							
3	Speed Actual (High Byte), rpm							

Assembly instance 70 is default instance so speed received is of 2 bytes. Speed received is without any scaling.

4.14.2 Assembly instance 129

Table 15: Assembly instance 129

Instance 129 (Input) [Length = 8 Bytes]

Byte	Bit 7	Bit 6	Bit .5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	AtRefernce	ReffromNet	CtrlFromNet	Ready	Running 2	Running 1	Warning	Faulted
1	Reserved	Reserved	Reserved	Reserved	Reserved	Bypass	INCH ON/OFF	Jog ON/OFF
2	Speed Actual (Low Byte), rpm							
3	Speed Actual (2nd Byte), rpm							
4	Speed Actual (3rd Byte), rpm							
5	Speed Actual (High Byte), rpm							
6	Torque Actual (Low Byte)							
7	Torque Actual (High Byte)							

- Byte 0 – Byte 1: Status word
- Byte 2 – Byte 5 shows actual speed. Unit is RPM. Actual Speed is scaled value of 100
  - For e.g., If actual speed is 1184.25 rpm, then it would be displayed as 118425 rpm
- Byte 6-7: Torque Actual
  - Unit is % and scale is 0.1%

4.14.3 Assembly instance 130

Instance 130 (Input) [Length = 18 Bytes]

Byte	Bit 7	Bit 6	Bit .5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	AtRefernce	ReffromNet	CtrlFromNet	Ready	Running 2	Running 1	Warning	Faulted
1	Reserved	Reserved	Reserved	Reserved	Reserved	Bypass	INCH ON/OFF	Jog ON/OFF
2	Drive State							
3	PD Selected value							
4	Speed Actual (Low Byte), rpm *							
5	Speed Actual (2nd Byte), rpm *							
6	Speed Actual (3rd Byte), rpm *							
7	Speed Actual (High Byte), rpm *							
8	Speed Actual (Low Byte), % **							
9	Speed Actual (High Byte), % **							
10	Process data OUT9 (1st LOW BYTE)							
11	Process data OUT9 (2nd BYTE)							
12	Process data OUT9 (3rd BYTE)							
13	Process data OUT9 (4th MSB BYTE)							
14	Process data OUT10 (1st LOW BYTE)							
15	Process data OUT10 (2nd BYTE)							
16	Process data OUT10 (3rd BYTE)							
17	Process data OUT10 (4th MSB BYTE)							

- Byte 0 – Byte 1: Status word
- Byte 2 shows Drive State. Drive state can be 1 of following for Assembly instance 130

0x00 DN_NON_EXISTANT
0x01 DN_STARTUP
0x02 DN_NOT_READY
0x03 DN_READY
0x04 DN_ENABLED
0x05 DN_STOPPING
0x06 DN_FAULT_STOP
0x07 DN_FAULTED

- Byte 3 shows PD Selected value in PDSELXX of assembly instance 122. Byte 3 displays 0 if both nibble value selected in PDSELXX is 0
- Byte 4-7 shows actual speed. Unit is RPM. Actual Speed is scaled value of 100
- For e.g., If actual speed is 1184.25 rpm, then it would be seen as 118425 rpm
- Byte 8-9 shows actual speed in %. This is the actual value from the frequency converter. The value is between 0...10000. In the application, the value is scaled in percentage of frequency area between set minimum and maximum frequency.
  0 = 0.00 %
  10000 = 100.00 %
- Byte 10-13 is for showing value selected in PDselector A. Default value is Processdataout1
- Byte 14-17 is for showing value selected in PDSelector B. Default value is Processdataout2
- Byte 10-13 and Byte 14-17 would show default values only when PDSELXX are 00

4.14.4 Assembly instance 131

Instance 131 (Input) [Length = 32 Bytes]

Byte	Bit 7	Bit 6	Bit .5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	AtRefernce	ReffromNet	CtrlFromNet	Ready	Running 2	Running 1	Warning	Faulted
1	Reserved	Reserved	Reserved	Reserved	Reserved	Bypass	INCH ON/OFF	Jog ON/OFF
2	Reserved							
3	Reserved							
4	Speed Actual (Low Byte), %							
5	Speed Actual (High Byte), %							
6	Torque Actual (Low Byte), %							
7	Torque Actual (High Byte), %							
8	Process data OUT1 (LOW BYTE)							
9	Process data OUT1 (HIGH BYTE)							
10	Process data OUT2 (LOW BYTE)							
11	Process data OUT2 (HIGH BYTE)							
12	Process data OUT3 (LOW BYTE)							
13	Process data OUT3 (HIGH BYTE)							
14	Process data OUT4 (LOW BYTE)							
15	Process data OUT4 (HIGH BYTE)							
16	Process data OUT9 (1st LOW BYTE)							
17	Process data OUT9 (2nd BYTE)							
18	Process data OUT9 (3rd BYTE)							
19	Process data OUT9 (4th MSB BYTE)							
20	Process data OUT10 (1st LOW BYTE)							
21	Process data OUT10 (2nd BYTE)							
22	Process data OUT10 (3rd BYTE)							
23	Process data OUT10 (4th MSB BYTE)							
24	Process data OUT11 (1st LOW BYTE)							
25	Process data OUT11 (2nd BYTE)							
26	Process data OUT11 (3rd BYTE)							
27	Process data OUT11 (4th MSB BYTE)							
28	Process data OUT12 (1st LOW BYTE)							
29	Process data OUT12 (2nd BYTE)							
30	Process data OUT12 (3rd BYTE)							
31	Process data OUT12 (4th MSB BYTE)							

- Byte 0 – Byte 1: Status word
- Byte 2-Byte 3: Reserved
- Byte 4-5 shows actual speed in %. This is the actual value from the frequency converter. The value is between 0...10000. In the application, the value is scaled in percentage of frequency area between set minimum and maximum frequency.
  0 = 0.00 %
  10000 = 100.00 %
- Byte 6-7 shows actual torque in % and scale is 0.1%
- Byte 8-15: ProcessDataout for monitoring, 4 parameters of 2 bytes or 1 byte
- Byte 16-31: ProcessDataout for monitoring, 4 parameters of either 4 bytes or 2 bytes or 1byte

Depending on size of parameter Byte 16-31 would be shown as in table.

Processdataout value	LSB	2nd Byte next to LSB	3rd byte from LSB	MSB
1 byte	XX	00	00	00
2 bytes	XX	XX	00	00
4 bytes	XX	XX	XX	XX

XX = value of parameter.

Note: Using ProcessDataOUT2-ProcessDataOUT5 and ProcessDataOUT9-ProcessDataOUT12 at a time only 8 system parameters could be monitored.

4.15 Generic comments

4.15.1 Output instance 121,122,123

- In control word (Byte 0-Byte 1) Jog, Inch, Bypass function would be enabled only when CtrlFromNet bit is set. If motor is running using EIP then Jog/Inch/Bypass function won't be enabled
- In Torque control mode: RunFwd/RunRev bit in control word (Byte 0-Byte 1) is used to run motor only and not the direction
- Speed reference in RPM:
  - If Speed reference is 1200 RPM, input should be given by multiplying 100 i.e., 1200*100=120000
  - If precise speed reference is required for e.g., 1184.56 rpm. then value should be given as 1184.56*100=118456 rpm
- Torque Reference in %:
  - To set torque reference as 10.3% value should be given as 103.
  - To set negative torque reference as -10.3% then value would be 65543 i.e., add 65536 to negative value -103

4.16 Process data variables

4.16.1 Process data out (Slave to master)

The fieldbus master can read the frequency converter's actual values using process data variables. All software applications use process data as follows:

Table 16: Process data OUT (Slave master)

Data	Value	Unit	Scale	Default, Min, Max
Process Data Out 1	Output Frequency	Hz	0.01 Hz	
Process Data Out 2	Unit temperature	Deg.C	0.1 Deg.C	
Process Data Out 3	Motor Current	A	0.1 A	
Process Data Out 4	Motor Torque	%	0.10%	
Process Data Out 5	Motor Power	%	0.10%	
Process Data Out 6	Motor Voltage	V	0.1 V	
Process Data Out 7	DC Bus voltage	V	1 V	
Process Data Out 8	Active Fault code			
Process Data Out 9	Not assigned			
Process Data Out 10	Not assigned			
Process Data Out 11	Not assigned			
Process Data Out 12	Not assigned			

The multipurpose control application has a selector parameter for every process data. The monitoring values and drive parameters can be selected using the Modbus ID number. Default selections are as in the table above.

Note: For monitoring system parameter through cyclic connection in assembly instance 131, only processdataout1 to processdataout4 and processdataout9 to processdataout12 would be used.

4.16.2 Process data in (Master to slave):

Data	Value	Data Type	Unit	Scale	Default
Process Data IN1	Not assigned				
Process Data IN2	Not assigned				
Process Data IN3	Not assigned				
Process Data IN4	Not assigned				
Process Data IN9	Not assigned				
Process Data IN10	Not assigned				
Process Data IN11	Not assigned				
Process Data IN12	Not assigned				

Note: For providing system parameter through cyclic connection in assembly instance 123, only process data parameter mentioned in above table would be used.

4.17 Parameter list for the PowerXL DX1 EIP

Table 17: Parameter list—parameters for the PowerXL DX1 EIP

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
M1.1	NA	NA	NA	Multi-Monitoring	INTEGER	18	x0
M2.1	160	1	1	Output Frequency	INTEGER	2	x100
M2.2	161	1	171	Speed Reference	DOUBLE	4	x100
M2.3	4	129	3	Motor Speed	DOUBLE	4	x100
M2.4	160	1	3	Motor Current	INTEGER	2	x10
M2.5	4	129	3	Motor Torque	INTEGER	2	x10
M2.6	160	1	10	Torque Reference	INTEGER	2	x10
M2.7	160	1	5	Motor Power	INTEGER	2	x10
M2.8	160	1	6	Motor Voltage	INTEGER	2	x10
M2.9	160	1	7	DC-link Voltage	INTEGER	2	x0
M2.10	160	1	8	Unit Temperature	INTEGER	2	x10
M2.11	160	1	9	Motor Temperature	INTEGER	2	x10
M2.12	162	1	195	Latest Fault Code	BYTE	1	x0
M2.13	161	1	93	Instant Motor Power	DOUBLE	4	x1000
M2.14	NA	NA	NA	v- L1/L2	INTEGER	2	x10
M2.15	NA	NA	NA	v- L2/L3	INTEGER	2	x10
M2.16	NA	NA	NA	v- L3/L1	INTEGER	2	x10
M2.17	NA	NA	NA	I-L1	INTEGER	2	x10
M2.18	NA	NA	NA	I-L2	INTEGER	2	x10
M2.19	NA	NA	NA	I-L3	INTEGER	2	x10
M3.1	161	1	113	Output	DOUBLE	4	x100
M3.2	161	1	114	Reference	DOUBLE	4	x100
M4.1	NA	NA	NA	DI1, DI2, DI3	BYTE	1	x0
M4.2	NA	NA	NA	DI4, DI5, DI6	BYTE	1	x0
M4.3	NA	NA	NA	DI7, DI8	BYTE	1	x0
M4.4	160	1	15	DO1,Virtual RO1,Virtual RO2	BYTE	1	x0
M4.7	160	1	16	RO1, RO2	BYTE	1	x0
M4.8	161	1	182	High Freq Pulse Input 1 Value	INTEGER	2	x0
M4.9	161	1	183	High Freq Pulse Input 2 Value	INTEGER	2	x0
M4.10	161	1	184	High Freq Pulse Output Value	INTEGER	2	x0
M4.11	NA	NA	NA	Control board DI Status	INTEGER	2	x0
M5.1	160	1	11	Analog Input 1	INTEGER	2	x100
M5.2	160	1	12	Analog Input 2	INTEGER	2	x100
M6.1	160	1	13	Analog Output 1	INTEGER	2	x100
M10.1	160	1	17	PID1 Set Point	DOUBLE	4	x100
M10.2	160	1	18	PID1 Feedback	DOUBLE	4	x100
M10.3	160	1	19	PID1 Error Value	DOUBLE	4	x100
M10.4	160	1	20	PID1 Output	INTEGER	2	x100
M10.5	160	1	21	PID1 Status	BYTE	1	x0
M11.1	160	1	22	PID2 Set Point	DOUBLE	4	x100
M11.2	160	1	23	PID2 Feedback	DOUBLE	4	x100
M11.3	160	1	24	PID2 Error Value	DOUBLE	4	x100
M11.4	160	1	25	PID2 Output	INTEGER	2	x100
M11.5	160	1	26	PID2 Status	BYTE	1	x0
M14.1	NA	NA	NA	SD Card Plug In	BYTE	1	x0
M41.1.1	160	1	27	Running Motors	BYTE	1	x0
M41.2.1	NA	NA	NA	MPC Drive1 Operate Mode	BYTE	1	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
M41.2.2	NA	NA	NA	MPC Drive2 Operate Mode	BYTE	1	x0
M41.2.3	NA	NA	NA	MPC Drive3 Operate Mode	BYTE	1	x0
M41.2.4	NA	NA	NA	MPC Drive4 Operate Mode	BYTE	1	x0
M41.2.5	NA	NA	NA	MPC Drive5 Operate Mode	BYTE	1	x0
M41.3.1	NA	NA	NA	MPC Drive1 Status	BYTE	1	x0
M41.3.2	NA	NA	NA	MPC Drive2 Status	BYTE	1	x0
M41.3.3	NA	NA	NA	MPC Drive3 Status	BYTE	1	x0
M41.3.4	NA	NA	NA	MPC Drive4 Status	BYTE	1	x0
M41.3.5	NA	NA	NA	MPC Drive5 Status	BYTE	1	x0
M41.4.1	NA	NA	NA	MPC Drive1 Network Status	BYTE	1	x0
M41.4.2	NA	NA	NA	MPC Drive2 Network Status	BYTE	1	x0
M41.4.3	NA	NA	NA	MPC Drive3 Network Status	BYTE	1	x0
M41.4.4	NA	NA	NA	MPC Drive4 Network Status	BYTE	1	x0
M41.4.5	NA	NA	NA	MPC Drive5 Network Status	BYTE	1	x0
M41.5.1	NA	NA	NA	MPC Drive1 Last Fault Code	BYTE	1	x0
M41.5.2	NA	NA	NA	MPC Drive2 Last Fault Code	BYTE	1	x0
M41.5.3	NA	NA	NA	MPC Drive3 Last Fault Code	BYTE	1	x0
M41.5.4	NA	NA	NA	MPC Drive4 Last Fault Code	BYTE	1	x0
M41.5.5	NA	NA	NA	MPC Drive5 Last Fault Code	BYTE	1	x0
M41.6.1	NA	NA	NA	MPC Drive1 f-Out	INTEGER	2	x100
M41.6.2	NA	NA	NA	MPC Drive2 f-Out	INTEGER	2	x100
M41.6.3	NA	NA	NA	MPC Drive3 f-Out	INTEGER	2	x100
M41.6.4	NA	NA	NA	MPC Drive4 f-Out	INTEGER	2	x100
M41.6.5	NA	NA	NA	MPC Drive5 f-Out	INTEGER	2	x100
M41.7.1	NA	NA	NA	MPC Drive1 V-Out	INTEGER	2	x10
M41.7.2	NA	NA	NA	MPC Drive2 V-Out	INTEGER	2	x10
M41.7.3	NA	NA	NA	MPC Drive3 V-Out	INTEGER	2	x10
M41.7.4	NA	NA	NA	MPC Drive4 V-Out	INTEGER	2	x10
M41.7.5	NA	NA	NA	MPC Drive5 V-Out	INTEGER	2	x10
M41.8.1	NA	NA	NA	MPC Drive1 I-Out	INTEGER	2	x10
M41.8.2	NA	NA	NA	MPC Drive2 I-Out	INTEGER	2	x10
M41.8.3	NA	NA	NA	MPC Drive3 I-Out	INTEGER	2	x10
M41.8.4	NA	NA	NA	MPC Drive4 I-Out	INTEGER	2	x10
M41.8.5	NA	NA	NA	MPC Drive5 I-Out	INTEGER	2	x10
M41.9.1	NA	NA	NA	MPC Drive1 M-Out	INTEGER	2	x10
M41.9.2	NA	NA	NA	MPC Drive2 M-Out	INTEGER	2	x10
M41.9.3	NA	NA	NA	MPC Drive3 M-Out	INTEGER	2	x10
M41.9.4	NA	NA	NA	MPC Drive4 M-Out	INTEGER	2	x10
M41.9.5	NA	NA	NA	MPC Drive5 M-Out	INTEGER	2	x10
M41.10.1	NA	NA	NA	MPC Drive1 P-Out	INTEGER	2	x10
M41.10.2	NA	NA	NA	MPC Drive2 P-Out	INTEGER	2	x10
M41.10.3	NA	NA	NA	MPC Drive3 P-Out	INTEGER	2	x10
M41.10.4	NA	NA	NA	MPC Drive4 P-Out	INTEGER	2	x10
M41.10.5	NA	NA	NA	MPC Drive5 P-Out	INTEGER	2	x10
M41.11.1	NA	NA	NA	MPC Drive1 n-Out	INTEGER	2	x0
M41.11.2	NA	NA	NA	MPC Drive2 n-Out	INTEGER	2	x0
M41.11.3	NA	NA	NA	MPC Drive3 n-Out	INTEGER	2	x0
M41.11.4	NA	NA	NA	MPC Drive4 n-Out	INTEGER	2	x0
M41.11.5	NA	NA	NA	MPC Drive5 n-Out	INTEGER	2	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
M41.12.1	NA	NA	NA	MPC Drive1 t-Run	DOUBLE	4	x10
M41.12.2	NA	NA	NA	MPC Drive2 t-Run	DOUBLE	4	x10
M41.12.3	NA	NA	NA	MPC Drive3 t-Run	DOUBLE	4	x10
M41.12.4	NA	NA	NA	MPC Drive4 t-Run	DOUBLE	4	x10
M41.12.5	NA	NA	NA	MPC Drive5 t-Run	DOUBLE	4	x10
M42.1	NA	NA	NA	PT100 Temperture	INTEGER	2	x10
M43.1	162	1	71	SlotA DI Status	INTEGER	2	x0
M43.2	162	1	118	SlotB DI Status	INTEGER	2	x0
M43.3	162	1	166	SlotC DI Status	INTEGER	2	x0
M43.4	162	1	193	SlotD DI Status	INTEGER	2	x0
M96.1	162	1	194	Control Board DIDO Status	INTEGER	2	x0
M96.2	160	1	28	Application Status Word	INTEGER	2	x0
M96.3	161	1	100	Standard Status Word	INTEGER	2	x0
M96.4	161	1	109	FB Status Word	INTEGER	2	x0
M96.5	161	1	110	FB Control Word	INTEGER	2	x0
M96.6	4	123	3	FB Speed Reference	INTEGER	2	x100
M96.7	161	1	112	FB Torque Ref	INTEGER	2	x10
M97.1	NA	NA	NA	Energy Savings	DOUBLE	4	x1000
M98.1	NA	NA	NA	Total MWh Count	DOUBLE	4	x10000
M98.2	NA	NA	NA	Total Power Day Count	INTEGER	2	x0
M98.3	NA	NA	NA	Total Power Hr Count	DOUBLE	4	x0
M98.4	NA	NA	NA	Trip MWh Count	DOUBLE	4	x10000
M98.6	NA	NA	NA	Trip Power Day Count	INTEGER	2	x0
M98.7	NA	NA	NA	Trip Power Hr Count	DOUBLE	4	x0
M99.1	NA	NA	NA	Total Run Time Count	DOUBLE	4	x10
M99.2	NA	NA	NA	Trip Run Time Count	INTEGER	2	x10
M99.3	NA	NA	NA	Numbers Of Start	INTEGER	2	x0
P1.1	160	1	64	Min Speed	DOUBLE	4	x100
P1.2	160	1	65	Max Speed	DOUBLE	4	x100
P1.3	160	1	66	Accel Time 1	INTEGER	2	x10
P1.4	160	1	67	Decel Time 1	INTEGER	2	x10
P1.5	NA	NA	NA	Motor Type Selection	BYTE	1	x0
P1.6	40	2	6	Motor Nom Current	INTEGER	2	x10
P1.7	40	2	15	Motor Nom Speed	INTEGER	2	x0
P1.8	160	1	212	Motor PF	INTEGER	2	x100
P1.9	40	2	7	Motor Nom Voltage	INTEGER	2	x0
P1.10	160	1	213	Motor Nom Frequency	INTEGER	2	x100
P1.11	160	1	59	Local Control Place	BYTE	1	x0
P1.12	160	1	60	Local Reference	BYTE	1	x0
P1.13	160	1	57	Remote 1 Control Place	BYTE	1	x0
P1.14	160	1	61	Remote 1 Reference	BYTE	1	x0
P1.15	NA	NA	NA	Frequency Reference Upper Limit	INTEGER	2	x100
P1.16	NA	NA	NA	Frequency Reference Upper Limit Source	BYTE	1	x0
P2.1.1	NA	NA	NA	AI Ref Scale Min Value	INTEGER	2	x100
P2.1.2	NA	NA	NA	AI Ref Scale Max Value	INTEGER	2	x100
P2.1.6	NA	NA	NA	Fine Tuning Input	BYTE	1	x0
P2.1.7	NA	NA	NA	Fine Tuning Min	INTEGER	2	x10
P2.1.8	NA	NA	NA	Fine Tuning Max	INTEGER	2	x10
P2.2.1	NA	NA	NA	AI1 Mode	BYTE	1	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P2.2.2	NA	NA	NA	AI1 Signal Range	BYTE	1	x0
P2.2.3	NA	NA	NA	AI1 Custom Min	INTEGER	2	x100
P2.2.4	NA	NA	NA	AI1 Custom Max	INTEGER	2	x100
P2.2.5	NA	NA	NA	AI1 Filter Time	INTEGER	2	x100
P2.2.6	NA	NA	NA	AI1 Signal Invert	BYTE	1	x0
P2.2.7	NA	NA	NA	AI1 Joystick Hyst	INTEGER	2	x100
P2.2.8	NA	NA	NA	AI1 Sleep Limit	INTEGER	2	x100
P2.2.9	NA	NA	NA	AI1 Sleep Delay	INTEGER	2	x100
P2.2.10	NA	NA	NA	AI1 Joystick Offset	INTEGER	2	x100
P2.2.11	NA	NA	NA	Analog Input 1 Scale	INTEGER	2	x0
P2.2.12	NA	NA	NA	Analog Input 1 Offset	INTEGER	2	x100
P2.3.1	NA	NA	NA	AI2 Mode	BYTE	1	x0
P2.3.2	NA	NA	NA	AI2 Signal Range	BYTE	1	x0
P2.3.3	NA	NA	NA	AI2 Custom Min	INTEGER	2	x100
P2.3.4	NA	NA	NA	AI2 Custom Max	INTEGER	2	x100
P2.3.5	NA	NA	NA	AI2 Filter Time	INTEGER	2	x100
P2.3.6	NA	NA	NA	AI2 Signal Invert	BYTE	1	x0
P2.3.7	NA	NA	NA	AI2 Joystick Hyst	INTEGER	2	x100
P2.3.8	NA	NA	NA	AI2 Sleep Limit	INTEGER	2	x100
P2.3.9	NA	NA	NA	AI2 Sleep Delay	INTEGER	2	x100
P2.3.10	NA	NA	NA	AI2 Joystick Offset	INTEGER	2	x100
P2.3.11	NA	NA	NA	Analog Input 2 Scale	INTEGER	2	x0
P2.3.12	NA	NA	NA	Analog Input 2 Offset	INTEGER	2	x100
P3.3.1	NA	NA	NA	CMA To GND Enable	BYTE	1	x0
P3.3.2	NA	NA	NA	CMB To GND Enable	BYTE	1	x0
P3.4.1.1	NA	NA	NA	High Freq Pulse Input 1 Type	BYTE	1	x0
P3.4.2.1	NA	NA	NA	High Freq Pulse Input 1 Func	BYTE	1	x0
P3.4.2.2	NA	NA	NA	High Freq Pulse Input 1 Scale	INTEGER	2	x0
P3.4.2.3	NA	NA	NA	High Freq Pulse Input 1 Offset	INTEGER	2	x100
P3.4.2.4	NA	NA	NA	High Freq Pulse Input 1 Filter Time	INTEGER	2	x0
P3.4.2.5	NA	NA	NA	High Freq Pulse Input 1 Min	INTEGER	2	x0
P3.4.2.6	NA	NA	NA	High Freq Pulse Input 1 Max	INTEGER	2	x0
P3.4.2.7	NA	NA	NA	High Freq Pulse Input 1 Fault	BYTE	1	x0
P3.4.2.8	NA	NA	NA	High Freq Pulse Input 1 Low Limit	INTEGER	2	x0
P3.4.2.9	NA	NA	NA	High Freq Pulse Input 1 High Limit	INTEGER	2	x0
P3.4.2.10	NA	NA	NA	High Freq Pulse Input 1 Check Delay	INTEGER	2	x0
P3.4.2.11	NA	NA	NA	High Freq Pulse Input 1 Hyst Level	INTEGER	2	x0
P3.5.1.1	NA	NA	NA	High Freq Pulse Input 2 Type	BYTE	1	x0
P3.5.2.1	NA	NA	NA	High Freq Pulse Input 2 Func	BYTE	1	x0
P3.5.2.2	NA	NA	NA	High Freq Pulse Input 2 Scale	INTEGER	2	x0
P3.5.2.3	NA	NA	NA	High Freq Pulse Input 2 Offset	INTEGER	2	x100
P3.5.2.4	NA	NA	NA	High Freq Pulse Input 2 Filter Time	INTEGER	2	x0
P3.5.2.5	NA	NA	NA	High Freq Pulse Input 2 Min	INTEGER	2	x0
P3.5.2.6	NA	NA	NA	High Freq Pulse Input 2 Max	INTEGER	2	x0
P3.5.2.7	NA	NA	NA	High Freq Pulse Input 2 Fault	BYTE	1	x0
P3.5.2.8	NA	NA	NA	High Freq Pulse Input 2 Low Limit	INTEGER	2	x0
P3.5.2.9	NA	NA	NA	High Freq Pulse Input 2 High Limit	INTEGER	2	x0
P3.5.2.10	NA	NA	NA	High Freq Pulse Input 2 Check Delay	INTEGER	2	x0
P3.5.2.11	NA	NA	NA	High Freq Pulse Input 2 Hyst level	INTEGER	2	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P4.2.1	NA	NA	NA	AO1 Mode	BYTE	1	x0
P4.2.2	160	1	43	AO1 Function	BYTE	1	x0
P4.2.3	NA	NA	NA	AO1 Filter Time	INTEGER	2	x100
P4.2.8	162	1	209	AO1 Minimum	BYTE	1	x0
P4.2.9	162	1	210	AO1 Scale	INTEGER	2	x0
P4.2.10	162	1	211	AO1 Inversion	BYTE	1	x0
P4.2.11	162	1	212	AO1 Offset	INTEGER	2	x100
P5.1.1	160	1	46	RO1 Function	BYTE	1	x0
P5.1.2	162	1	213	RO1 On Delay	INTEGER	2	x10
P5.1.3	162	1	214	RO1 Off Delay	INTEGER	2	x10
P5.1.4	160	1	47	RO2 Function	BYTE	1	x0
P5.1.5	162	1	215	RO2 On Delay	INTEGER	2	x10
P5.1.6	162	1	216	RO2 Off Delay	INTEGER	2	x10
P5.2.1	160	1	45	DO1 Function	BYTE	1	x0
P5.3.1	161	1	123	Virtual RO1 Function	BYTE	1	x0
P5.3.2	NA	NA	NA	Virtual RO1 On Delay	INTEGER	2	x10
P5.3.3	NA	NA	NA	Virtual RO1 Off Delay	INTEGER	2	x10
P5.3.4	161	1	124	Virtual RO2 Function	BYTE	1	x0
P5.3.5	NA	NA	NA	Virtual RO2 On Delay	INTEGER	2	x10
P5.3.6	NA	NA	NA	Virtual RO2 Off Delay	INTEGER	2	x10
P5.4.1.1	161	1	185	High Freq Pulse Output Type	BYTE	1	x0
P5.4.2.1	161	1	186	High Freq Pulse Output Source	BYTE	1	x0
P5.4.2.2	161	1	187	High Freq Pulse Output Scale	INTEGER	2	x0
P5.4.2.3	161	1	188	High Freq Pulse Output Offset	INTEGER	2	x100
P5.4.2.4	161	1	189	High Freq Pulse Output Filter Time	INTEGER	2	x0
P5.4.2.5	161	1	190	High Freq Pulse Output Min	INTEGER	2	x0
P5.4.2.6	161	1	191	High Freq Pulse Output Max	INTEGER	2	x0
P5.4.2.7	161	1	192	High Freq Pulse Output Fault	BYTE	1	x0
P5.4.2.8	161	1	193	High Freq Pulse Output Low Limit	INTEGER	2	x0
P5.4.2.9	161	1	194	High Freq Pulse Output High Limit	INTEGER	2	x0
P5.4.2.10	161	1	195	High Freq Pulse Output Check Delay	INTEGER	2	x0
P5.4.2.11	161	1	196	High Freq Pulse Output Hyst Level	INTEGER	2	x0
P7.1.1	162	1	217	IO Terminal 1 Start Stop Logic	BYTE	1	x0
P7.1.2	162	1	218	IO Terminal 1 Start Signal 1	BYTE	1	x0
P7.1.3	162	1	219	IO Terminal 1 Start Signal 2	BYTE	1	x0
P7.1.4	162	1	220	IO Terminal 2 Start Stop Logic	BYTE	1	x0
P7.1.5	162	1	221	IO Terminal 2 Start Signal 1	BYTE	1	x0
P7.1.6	162	1	222	IO Terminal 2 Start Signal 2	BYTE	1	x0
P7.1.7	162	1	223	Reverse	BYTE	1	x0
P7.1.8	161	1	175	Reverse Enable	BYTE	1	x0
P7.1.9	162	1	246	Run Enable	BYTE	1	x0
P7.1.10	161	1	181	Run Remove Stop Mode	BYTE	1	x0
P7.1.12	162	1	225	Fault Reset	BYTE	1	x0
P7.1.13	162	1	226	Start Mode	BYTE	1	x0
P7.1.14	162	1	227	Stop Mode	BYTE	1	x0
P7.1.15	162	1	228	Fault Reset Start	BYTE	1	x0
P7.1.16	162	1	229	Power Loss Function	BYTE	1	x0
P7.1.17	162	1	230	Power Loss Time	INTEGER	2	x10
P7.1.18	162	1	231	Bumpless Enable	BYTE	1	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P7.1.19	161	1	197	Switching Frequency	INTEGER	2	x10
P7.1.20	162	1	232	Sine Filter Enable	BYTE	1	x0
P7.1.21	162	1	233	Ext Fault-AR	BYTE	1	x0
P7.1.22	161	1	116	HOA Source	BYTE	1	x0
P7.2.1	160	1	64	Min Speed	DOUBLE	4	x100
P7.2.2	160	1	65	Max Speed	DOUBLE	4	x100
P7.2.3	160	1	63	Keypad Reference	DOUBLE	4	x100
P7.2.4	160	1	241	Keypad Torque Ref	INTEGER	2	x10
P7.2.5	162	1	234	AI Ref Source Select	BYTE	1	x0
P7.2.6	162	1	235	Preset Speed B0	BYTE	1	x0
P7.2.7	162	1	236	Preset Speed B1	BYTE	1	x0
P7.2.8	162	1	237	Preset Speed B2	BYTE	1	x0
P7.2.9	162	1	238	Jog Reference	INTEGER	2	x100
P7.2.10	162	1	239	Motor Pot Ramp Time	INTEGER	2	x10
P7.2.11	162	1	240	Motor Pot Ref Reset	BYTE	1	x0
P7.2.12	NA	NA	NA	Change PhaseSequence Motor	BYTE	1	x0
P7.2.13	162	1	241	Accel Pot Value	BYTE	1	x0
P7.2.14	162	1	242	Decel Pot Value	BYTE	1	x0
P7.2.15	162	1	243	Reset Pot Zero	BYTE	1	x0
P7.2.16	162	1	196	Speed Trim Setting	BYTE	1	x0
P7.2.17	162	1	197	Torque Trim Setting	BYTE	1	x0
P7.3.1	161	1	92	Power Up Local Remote Select	BYTE	1	x0
P7.3.2	160	1	38	Remote 1/2 Select	BYTE	1	x0
P7.3.5	161	1	122	HOA On/Off	BYTE	1	x0
P7.3.6	160	1	37	Local Control	BYTE	1	x0
P7.3.7	160	1	36	Remote Control	BYTE	1	x0
P7.3.8	160	1	59	Local Control Place	BYTE	1	x0
P7.3.9	160	1	60	Local Reference	BYTE	1	x0
P7.3.10	160	1	57	Remote 1 Control Place	BYTE	1	x0
P7.3.11	160	1	61	Remote 1 Reference	BYTE	1	x0
P7.3.12	160	1	58	Remote 2 Control Place	BYTE	1	x0
P7.3.13	160	1	62	Remote 2 Reference	BYTE	1	x0
P7.4.1	160	1	33	Accel/Decel Time Set	BYTE	1	x0
P7.4.4	160	1	34	Accel/Decel Prohibit	BYTE	1	x0
P7.4.5	160	1	66	Accel Time 1	INTEGER	2	x10
P7.4.6	160	1	67	Decel Time 1	INTEGER	2	x10
P7.4.7	160	1	68	Ramp 1 Shape	INTEGER	2	x10
P7.4.8	160	1	69	Accel Time 2	INTEGER	2	x10
P7.4.9	160	1	70	Decel Time 2	INTEGER	2	x10
P7.4.10	160	1	71	Ramp 2 Shape	INTEGER	2	x10
P7.4.11	161	1	131	2nd Stage Ramp Frequency	INTEGER	2	x100
P7.5.1	NA	NA	NA	Preset Speed 1	DOUBLE	4	x100
P7.5.2	NA	NA	NA	Preset Speed 2	DOUBLE	4	x100
P7.5.3	NA	NA	NA	Preset Speed 3	DOUBLE	4	x100
P7.5.4	NA	NA	NA	Preset Speed 4	DOUBLE	4	x100
P7.5.5	NA	NA	NA	Preset Speed 5	DOUBLE	4	x100
P7.5.6	NA	NA	NA	Preset Speed 6	DOUBLE	4	x100
P7.5.7	NA	NA	NA	Preset Speed 7	DOUBLE	4	x100
P7.6.1	160	1	93	AR Wait Time	INTEGER	2	x100

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P7.6.2	160	1	94	AR Trail Time	INTEGER	2	x100
P7.6.3	160	1	95	AR Start Function	BYTE	1	x0
P7.6.4	160	1	96	Undervoltage Attempts	BYTE	1	x0
P7.6.5	160	1	97	OverVoltage Attempts	BYTE	1	x0
P7.6.6	160	1	98	OverCurrent Attempts	BYTE	1	x0
P7.6.7	160	1	99	4mA Fault Attempts	BYTE	1	x0
P7.6.8	160	1	100	Motor Temp Fault Attempts	BYTE	1	x0
P7.6.9	160	1	101	External Fault Attempts	BYTE	1	x0
P7.6.10	160	1	102	Underload Attempts	BYTE	1	x0
P7.6.11	162	1	198	Number Of Tries After AI Trip	BYTE	1	x0
P7.7.1	161	1	94	Cold Weather Mode	BYTE	1	x0
P7.7.2	161	1	95	Cold Weather Volt. Level	BYTE	1	x10
P7.7.3	161	1	96	Cold Weather Time Out	BYTE	1	x0
P7.7.4	161	1	97	Cold Weather Password	INTEGER	2	x0
P8.1.1	160	1	201	Motor Control Mode	BYTE	1	x0
P8.1.2	42	1	10	Current Limit	INTEGER	2	x10
P8.1.3	160	1	39	Second Motor Para Select	BYTE	1	x0
P8.1.4	162	1	19	Encoder Signal Selection	BYTE	1	x0
P8.1.5	162	1	20	Encoder 1 Scale	INTEGER	2	x1000
P8.1.6	162	1	21	Encoder 2 Scale	INTEGER	2	x1000
P8.2.1	NA	NA	NA	Skip Range Ramp Factor	INTEGER	2	x10
P8.2.2	NA	NA	NA	Skip F1 Low Limit	DOUBLE	4	x100
P8.2.3	NA	NA	NA	Skip F1 High Limit	DOUBLE	4	x100
P8.2.4	NA	NA	NA	Skip F2 Low Limit	DOUBLE	4	x100
P8.2.5	NA	NA	NA	Skip F2 High Limit	DOUBLE	4	x100
P8.2.6	NA	NA	NA	Skip F3 Low Limit	DOUBLE	4	x100
P8.2.7	NA	NA	NA	Skip F3 High Limit	DOUBLE	4	x100
P8.3.1	NA	NA	NA	Preheat Mode	BYTE	1	x0
P8.3.2	NA	NA	NA	Preheat Control Source	BYTE	1	x0
P8.3.3	NA	NA	NA	Preheat Enter Temp	INTEGER	2	x10
P8.3.4	NA	NA	NA	Preheat Quit Temp	INTEGER	2	x10
P8.10.1	NA	NA	NA	Motor Type Selection	BYTE	1	x0
P8.10.2	40	2	6	Motor Nom Current	INTEGER	2	x10
P8.10.3	40	2	15	Motor Nom Speed	INTEGER	2	x0
P8.10.4	160	1	212	Motor PF	INTEGER	2	x100
P8.10.5	40	2	7	Motor Nom Voltage	INTEGER	2	x0
P8.10.6	160	1	213	Motor Nom Frequency	INTEGER	2	x100
P8.10.8	NA	NA	NA	Identification	BYTE	1	x0
P8.10.9	NA	NA	NA	Stator Resistor	INTEGER	2	x1000
P8.10.10	NA	NA	NA	Rotor Resistor	INTEGER	2	x1000
P8.10.11	NA	NA	NA	Leak Inductance	INTEGER	2	x100
P8.10.14	NA	NA	NA	Mutual Inductance	INTEGER	2	x10
P8.10.15	NA	NA	NA	Excitation Current	INTEGER	2	x10
P8.10.16	161	1	176	PM BEMF Voltage	INTEGER	2	x0
P8.10.17	161	1	177	PM q-axis stator inductance	INTEGER	2	x0
P8.10.18	161	1	178	PM d-axis stator inductance	INTEGER	2	x0
P8.10.19	161	1	180	Motor Inertia	INTEGER	2	x1000
P8.10.20	161	1	179	Observer Kp	INTEGER	2	x0
P8.11.1	NA	NA	NA	Motor 2 Type Selection	BYTE	1	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P8.11.2	40	3	6	Motor Nom Current 2	INTEGER	2	x10
P8.11.3	40	3	15	Motor Nom Speed 2	INTEGER	2	x0
P8.11.4	160	1	217	Motor PF 2	INTEGER	2	x100
P8.11.5	40	3	7	Motor Nom Volt 2	INTEGER	2	x0
P8.11.6	160	1	218	Motor Nom Freq 2	INTEGER	2	x100
P8.11.9	NA	NA	NA	Stator Resistor 2	INTEGER	2	x1000
P8.11.10	NA	NA	NA	Rotor Resistor 2	INTEGER	2	x1000
P8.11.11	NA	NA	NA	Leak Inductance 2	INTEGER	2	x100
P8.11.14	NA	NA	NA	Mutual Inductance 2	INTEGER	2	x10
P8.11.15	NA	NA	NA	Excitation Current 2	INTEGER	2	x10
P8.11.16	161	1	198	Second PM BEMF Voltage	INTEGER	2	x0
P8.11.17	NA	NA	NA	Second PM q-axis Stator Inductance	INTEGER	2	x0
P8.11.18	NA	NA	NA	Second PM d-axis Stator Inductance	INTEGER	2	x0
P8.11.19	NA	NA	NA	Motor Inertia2	INTEGER	2	x1000
P8.20.1	NA	NA	NA	V/Hz Optimization	BYTE	1	x0
P8.20.2	NA	NA	NA	V/Hz Ratio	BYTE	1	x0
P8.20.3	NA	NA	NA	Field Weakening Point	INTEGER	2	x100
P8.20.4	NA	NA	NA	Voltage At FWP	INTEGER	2	x100
P8.20.5	NA	NA	NA	V/Hz Mid Frequency	INTEGER	2	x100
P8.20.6	NA	NA	NA	V/Hz Mid Voltage	INTEGER	2	x100
P8.20.7	NA	NA	NA	Zero Frequency Voltage	INTEGER	2	x100
P8.20.8	NA	NA	NA	OverVoltage Control	BYTE	1	x0
P8.20.9	NA	NA	NA	Over Voltage Controller Reference	INTEGER	2	x0
P8.20.10	NA	NA	NA	Load Drooping	INTEGER	2	x100
P8.20.11	NA	NA	NA	Droop Control Filter Time Constant	INTEGER	2	x0
P8.20.12	NA	NA	NA	Slip Compensation Coefficient	INTEGER	2	x0
P8.20.13	NA	NA	NA	V/F Stable Kd	INTEGER	2	x0
P8.20.14	NA	NA	NA	V/F Stable Kq	INTEGER	2	x0
P8.20.15	NA	NA	NA	Overmodulation Enable	BYTE	1	x0
P8.20.16	NA	NA	NA	Pulse Off Frequency	BYTE	1	x0
P8.21.1	161	1	54	Speed Error Filter Time Constant	INTEGER	2	x0
P8.21.2	161	1	56	Speed Control Kp0	INTEGER	2	x10
P8.21.3	161	1	57	Speed Control Ti0	INTEGER	2	x10
P8.21.4	161	1	60	Speed Control F0	DOUBLE	4	x100
P8.21.5	161	1	61	Speed Control F1	DOUBLE	4	x100
P8.21.6	161	1	62	Speed Control Kp1	INTEGER	2	x10
P8.21.7	161	1	63	Speed Control Ti1	INTEGER	2	x10
P8.21.8	NA	NA	NA	Motoring Power Limit	INTEGER	2	x10
P8.21.9	NA	NA	NA	Generator Power Limit	INTEGER	2	x10
P8.21.10	161	1	72	Flux Reference	INTEGER	2	x10
P8.21.11	161	1	75	Flux Current Ramp Time	INTEGER	2	x0
P8.21.12	161	1	51	Neg Speed Limit	DOUBLE	4	x100
P8.21.13	161	1	52	Pos Speed Limit	DOUBLE	4	x100
P8.21.14	161	1	53	Frequency Ramp Out FilterTime Constant	INTEGER	2	x0
P8.21.25	NA	NA	NA	Speed Reg BW0	INTEGER	2	x100
P8.21.26	NA	NA	NA	Speed Reg BW1	INTEGER	2	x100
P8.21.27	NA	NA	NA	Id Kp0	INTEGER	2	x10
P8.21.28	NA	NA	NA	Id Ti0	INTEGER	2	x10
P8.21.29	NA	NA	NA	Iq Kp0	INTEGER	2	x10

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P8.21.30	NA	NA	NA	Iq Ti0	INTEGER	2	x10
P8.21.31	NA	NA	NA	Id Kp1	INTEGER	2	x10
P8.21.32	NA	NA	NA	Id Ti1	INTEGER	2	x10
P8.21.33	NA	NA	NA	Iq Kp1	INTEGER	2	x10
P8.21.34	NA	NA	NA	Iq Ti1	INTEGER	2	x10
P8.21.35	NA	NA	NA	Current Control F0	INTEGER	2	x100
P8.21.36	NA	NA	NA	Current Control F1	INTEGER	2	x100
P8.22.5	161	1	78	Startup Torque Selection	INTEGER	2	x0
P8.22.6	161	1	65	Motoring Torque Limit	INTEGER	2	x10
P8.22.7	161	1	66	Generator Torque Limit	INTEGER	2	x10
P8.22.8	161	1	67	Torque Limit Forward	INTEGER	2	x10
P8.22.9	161	1	68	Torque Limit Reverse	INTEGER	2	x10
P8.22.10	161	1	79	Torque Memory Start	INTEGER	2	x10
P8.22.11	161	1	80	Startup Torque Forward	INTEGER	2	x10
P8.22.12	161	1	81	Startup Torque Reverse	INTEGER	2	x10
P8.22.13	161	1	82	Startup Torque Actual	INTEGER	2	x10
P8.22.14	161	1	88	Startup Torque Time	INTEGER	2	x0
P8.22.15	160	1	202	Torque Limit	INTEGER	2	x10
P8.22.16	161	1	69	Pull Out Torque	INTEGER	2	x10
P8.22.17	160	1	203	Torque Ref Select	BYTE	1	x0
P8.22.18	160	1	204	Torque Ref Max	INTEGER	2	x10
P8.22.19	160	1	205	Torque Ref Min	INTEGER	2	x10
P8.22.20	161	1	87	Torque Reference Filter TC	INTEGER	2	x0
P8.22.21	161	1	89	Speed Limiter Mode	BYTE	1	x0
P8.22.22	161	1	83	Window Pos Width	DOUBLE	4	x100
P8.22.23	161	1	84	Window Neg Width	DOUBLE	4	x100
P8.22.24	161	1	85	Window Pos Off Limit	DOUBLE	4	x100
P8.22.25	161	1	86	Window Neg Off Limit	DOUBLE	4	x100
P8.22.26	161	1	91	Stop State Magnetisation Time	INTEGER	2	x0
P8.23.1	NA	NA	NA	PM Initial Selection	BYTE	1	x0
P8.23.2	NA	NA	NA	PM Initial Time	INTEGER	2	x0
P8.23.3	NA	NA	NA	PM Excited Current	INTEGER	2	x0
P8.23.4	NA	NA	NA	PM Excited Current Off Frequency	INTEGER	2	x0
P10.1.1	160	1	31	PID1 Control Enable	BYTE	1	x0
P10.1.2	160	1	40	PID1 Set Point Select	BYTE	1	x0
P10.2.1	160	1	103	PID1 Control Gain	INTEGER	2	x100
P10.2.2	160	1	104	PID1 Control ITime	INTEGER	2	x100
P10.2.3	160	1	105	PID1 Control DTime	INTEGER	2	x100
P10.2.4	160	1	106	PID1 Process Unit	BYTE	1	x0
P10.2.5	160	1	108	PID1 Process Unit Min	DOUBLE	4	x100
P10.2.6	160	1	109	PID1 Process Unit Max	DOUBLE	4	x100
P10.2.7	160	1	107	PID1 Process Unit Decimal	BYTE	1	x0
P10.2.8	160	1	110	PID1 Error Inversion	BYTE	1	x0
P10.2.9	160	1	111	PID1 Dead Band	DOUBLE	4	x100
P10.2.10	160	1	112	PID1 Dead Band Delay	INTEGER	2	x100
P10.2.11	160	1	113	PID1 Ramp Time	INTEGER	2	x100
P10.2.12	161	1	199	PID1 Output Min	INTEGER	2	x100
P10.2.13	161	1	200	PID1 Output Max	INTEGER	2	x100
P10.3.1	NA	NA	NA	PID1 Keypad Set Point 1	DOUBLE	4	x100

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P10.3.2	NA	NA	NA	PID1 Keypad Set Point 2	DOUBLE	4	x100
P10.3.3	161	1	142	PID1 Wake Up Action	BYTE	1	x0
P10.3.4	161	1	201	PID1 Sleep Boost level	INTEGER	2	x0
P10.3.5	161	1	202	PID1 Sleep Boost Max Time	INTEGER	2	x0
P10.4.1	160	1	114	PID1 Set Point 1 Source	BYTE	1	x0
P10.4.2	160	1	117	PID1 Set Point 1 Sleep Enable	BYTE	1	x0
P10.4.3	160	1	118	PID1 Set Point 1 Sleep Delay	INTEGER	2	x0
P10.4.4	160	1	119	PID1 Set Point 1 Wake Up Level	DOUBLE	4	x100
P10.4.5	160	1	120	PID1 Set Point 1 Boost	BYTE	1	x10
P10.4.6	161	1	139	PID1 Set Point 1 Sleep Level	DOUBLE	4	x100
P10.4.9	160	1	115	PID1 Set Point 1 Min	INTEGER	2	x100
P10.4.10	160	1	116	PID1 Set Point 1 Max	INTEGER	2	x100
P10.4.11	161	1	138	PID1 Set Point 1 Sleep Unit Sel	BYTE	1	x0
P10.4.12	160	1	148	PID1 Set Point 1 Comp Enable	BYTE	1	x0
P10.4.13	160	1	149	PID1 Set Point 1 Comp Max	INTEGER	2	x100
P10.5.1	160	1	121	PID1 Set Point 2 Source	BYTE	1	x0
P10.5.2	160	1	124	PID1 Set Point 2 Sleep Enable	BYTE	1	x0
P10.5.3	160	1	125	PID1 Set Point 2 Sleep Delay	INTEGER	2	x0
P10.5.4	160	1	126	PID1 Set Point 2 Wake Up Level	DOUBLE	4	x100
P10.5.5	160	1	127	PID1 Set Point 2 Boost	BYTE	1	x10
P10.5.6	161	1	141	PID1 Set Point 2 Sleep Level	DOUBLE	4	x100
P10.5.9	160	1	122	PID1 Set Point 2 Min	INTEGER	2	x100
P10.5.10	160	1	123	PID1 Set Point 2 Max	INTEGER	2	x100
P10.5.11	161	1	140	PID1 Set Point 2 Sleep Unit Sel	BYTE	1	x0
P10.5.12	160	1	150	PID1 Set Point 2 Comp Enable	BYTE	1	x0
P10.5.13	160	1	151	PID1 Set Point 2 Comp Max	INTEGER	2	x100
P10.6.1	161	1	143	FB PID1 Set Point 1	DOUBLE	4	x100
P10.6.2	161	1	144	FB PID1 Set Point 2	DOUBLE	4	x100
P10.6.3	161	1	145	FB PID1 Feedback 1	INTEGER	2	x100
P10.6.4	161	1	146	FB PID1 Feedback 2	INTEGER	2	x100
P10.6.5	161	1	147	FB PID1 Feedforward 1	INTEGER	2	x100
P10.6.6	161	1	148	FB PID1 Feedforward 2	INTEGER	2	x100
P10.7.1	160	1	129	PID1 Feedback Gain	INTEGER	2	x10
P10.7.2	160	1	128	PID1 Feedback Function	BYTE	1	x0
P10.7.3	161	1	203	PID1 Low Feedback Level	INTEGER	2	x10
P10.7.4	161	1	204	PID1 Low Feedback Time	INTEGER	2	x0
P10.7.5	161	1	205	PID1 Low Feedback Protection	BYTE	1	x0
P10.7.6	161	1	206	PID1 High Feedback Level	INTEGER	2	x10
P10.7.7	161	1	207	PID1 High Feedback Time	INTEGER	2	x0
P10.7.8	161	1	208	PID1 High Feedback Protection	BYTE	1	x0
P10.7.9	161	1	209	PID1 Hysteresis Level	INTEGER	2	x10
P10.7.10	161	1	210	PID1 Backup Feedback Source	BYTE	1	x0
P10.8.1	160	1	130	PID1 Feedback 1 Source	BYTE	1	x0
P10.8.2	160	1	131	PID1 Feedback 1 Min	INTEGER	2	x100
P10.8.3	160	1	132	PID1 Feedback 1 Max	INTEGER	2	x100
P10.8.4	160	1	133	PID1 Feedback 2 Source	BYTE	1	x0
P10.8.5	160	1	134	PID1 Feedback 2 Min	INTEGER	2	x100
P10.8.6	160	1	135	PID1 Feedback 2 Max	INTEGER	2	x100
P10.9.1	160	1	136	PID1 Feedforward Func	BYTE	1	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P10.9.2	160	1	137	PID1 Feedforward Gain	INTEGER	2	x10
P10.9.3	160	1	138	PID1 Feedforward 1 Source	BYTE	1	x0
P10.9.4	160	1	139	PID1 Feedforward 1 Min	INTEGER	2	x100
P10.9.5	160	1	140	PID1 Feedforward 1 Max	INTEGER	2	x100
P10.9.6	160	1	141	PID1 Feedforward 2 Source	BYTE	1	x0
P10.9.7	160	1	142	PID1 Feedforward 2 Min	INTEGER	2	x100
P10.9.8	160	1	143	PID1 Feedforward 2 Max	INTEGER	2	x100
P11.1.1	160	1	32	PID2 Control Enable	BYTE	1	x0
P11.1.2	160	1	41	PID2 Set Point Select	BYTE	1	x0
P11.2.1	160	1	152	PID2 Control Gain	INTEGER	2	x100
P11.2.2	160	1	153	PID2 Control I Time	INTEGER	2	x100
P11.2.3	160	1	154	PID2 Control D Time	INTEGER	2	x100
P11.2.4	160	1	155	PID2 Process Unit	BYTE	1	x0
P11.2.5	160	1	157	PID2 Process Unit Min	DOUBLE	4	x100
P11.2.6	160	1	158	PID2 Process Unit Max	DOUBLE	4	x100
P11.2.7	160	1	156	PID2 Process Unit Decimal	BYTE	1	x0
P11.2.8	160	1	159	PID2 Error Inversion	BYTE	1	x0
P11.2.9	160	1	160	PID2 Dead Band	DOUBLE	4	x100
P11.2.10	160	1	161	PID2 Dead Band Delay	INTEGER	2	x100
P11.2.11	160	1	162	PID2 Ramp Time	INTEGER	2	x100
P11.2.12	161	1	211	PID2 Output Min	INTEGER	2	x100
P11.2.13	161	1	212	PID2 Output Max	INTEGER	2	x100
P11.3.1	162	1	207	PID2 Keypad Set Point 1	DOUBLE	4	x100
P11.3.2	162	1	208	PID2 Keypad Set Point 2	DOUBLE	4	x100
P11.3.3	161	1	153	PID2 Wake Up Action	BYTE	1	x0
P11.3.4	NA	NA	NA	PID2 Sleep Boost level	INTEGER	2	x0
P11.3.5	NA	NA	NA	PID2 Sleep Boost Max Time	INTEGER	2	x0
P11.4.1	160	1	163	PID2 Set Point 1 Source	BYTE	1	x0
P11.4.2	160	1	166	PID2 Set Point 1 Sleep Enable	BYTE	1	x0
P11.4.3	160	1	167	PID2 Set Point 1 Sleep Delay	INTEGER	2	x0
P11.4.4	160	1	168	PID2 Set Point 1 WakeUp Level	DOUBLE	4	x100
P11.4.5	160	1	169	PID2 Set Point 1 Boost	BYTE	1	x10
P11.4.6	161	1	150	PID2 Set Point 1 Sleep Level	DOUBLE	4	x100
P11.4.9	160	1	164	PID2 Set Point 1 Min	INTEGER	2	x100
P11.4.10	160	1	165	PID2 Set Point 1 Max	INTEGER	2	x100
P11.4.11	161	1	149	PID2 Set Point 1 Sleep Unit Sel	BYTE	1	x0
P11.4.12	160	1	199	PID2 Set Point 2 Comp Enable	BYTE	1	x0
P11.4.13	160	1	200	PID2 Set Point 2 Comp Max	INTEGER	2	x100
P11.5.1	160	1	170	PID2 Set Point 2 Source	BYTE	1	x0
P11.5.2	160	1	173	PID2 Set Point 2 Sleep Enable	BYTE	1	x0
P11.5.3	160	1	174	PID2 Set Point 2 Sleep Delay	INTEGER	2	x0
P11.5.4	160	1	175	PID2 Set Point 2 WakeUp Level	DOUBLE	4	x100
P11.5.5	160	1	176	PID2 Set Point 2 Boost	BYTE	1	x10
P11.5.6	161	1	152	PID2 Set Point 2 Sleep Level	DOUBLE	4	x100
P11.5.9	160	1	171	PID2 Set Point 2 Min	INTEGER	2	x100
P11.5.10	160	1	172	PID2 Set Point 2 Max	INTEGER	2	x100
P11.5.11	161	1	151	PID2 Set Point 2 Sleep Unit Sel	BYTE	1	x0
P11.5.12	160	1	197	PID2 Set Point1 Comp Enable	BYTE	1	x0
P11.5.13	160	1	198	PID2 Set Point1 Comp Max	INTEGER	2	x100

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P11.6.1	161	1	154	FB PID2 Set Point 1	DOUBLE	4	x100
P11.6.2	161	1	155	FB PID2 Set Point 2	DOUBLE	4	x100
P11.6.3	161	1	156	FB PID2 Feedback 1	INTEGER	2	x100
P11.6.4	161	1	157	FB PID2 Feedback 2	INTEGER	2	x100
P11.6.5	161	1	158	FB PID2 Feedforward 1	INTEGER	2	x100
P11.6.6	161	1	159	FB PID2 Feedforward 2	INTEGER	2	x100
P11.7.1	160	1	178	PID2 Feedback Gain	INTEGER	2	x10
P11.7.2	160	1	177	PID2 Feedback Func	BYTE	1	x0
P11.7.3	161	1	213	PID2 Low Feedback Level	INTEGER	2	x10
P11.7.4	161	1	214	PID2 Low Feedback Time	INTEGER	2	x0
P11.7.5	161	1	215	PID2 Low Feedback Protection	BYTE	1	x0
P11.7.6	161	1	216	PID2 High Feedback Level	INTEGER	2	x10
P11.7.7	161	1	217	PID2 High Feedback Time	INTEGER	2	x0
P11.7.8	161	1	218	PID2 High Feedback Protection	BYTE	1	x0
P11.7.9	161	1	219	PID2 Hysteresis Level	INTEGER	2	x10
P11.7.10	NA	NA	NA	PID2 Backup Feedback Source	BYTE	1	x0
P11.8.1	160	1	179	PID2 Feedback 1 Source	BYTE	1	x0
P11.8.2	160	1	180	PID2 Feedback 1 Min	INTEGER	2	x100
P11.8.3	160	1	181	PID2 Feedback 1 Max	INTEGER	2	x100
P11.8.4	160	1	182	PID2 Feedback 2 Source	BYTE	1	x0
P11.8.5	160	1	183	PID2 Feedback 2 Min	INTEGER	2	x100
P11.8.6	160	1	184	PID2 Feedback 2 Max	INTEGER	2	x100
P11.9.1	160	1	185	PID2 Feedforward Func	BYTE	1	x0
P11.9.2	160	1	186	PID2 Feedforward Gain	INTEGER	2	x10
P11.9.3	160	1	187	PID2 Feedforward 1 Source	BYTE	1	x0
P11.9.4	160	1	188	PID2 Feedforward 1 Min	INTEGER	2	x100
P11.9.5	160	1	189	PID2 Feedforward 1 Max	INTEGER	2	x100
P11.9.6	160	1	190	PID2 Feedforward 2 Source	BYTE	1	x0
P11.9.7	160	1	191	PID2 Feedforward 2 Min	INTEGER	2	x100
P11.9.8	160	1	192	PID2 Feedforward 2 Max	INTEGER	2	x100
P14.1	161	1	220	Master Follower Mode	BYTE	1	x0
P14.2	161	1	221	Synchronization Mode	BYTE	1	x0
P14.3	161	1	222	Communication Link	BYTE	1	x0
P14.4	161	1	223	Speed Ratio Refresh Mode	BYTE	1	x0
P14.5	161	1	224	Speed Ratio Refresh Source	BYTE	1	x0
P14.6	161	1	225	Speed Error Response	BYTE	1	x0
P14.7	161	1	226	Speed Error Limit	INTEGER	2	x10
P14.8	161	1	227	Speed Fault Delay	INTEGER	2	x10
P14.9	161	1	228	Torque Ratio	INTEGER	2	x1000
P14.10	161	1	229	Follower Incoming Reference	BYTE	1	x0
P14.11	161	1	230	Follower Start Delay	INTEGER	2	x10
P14.12	161	1	231	Follower Stop Delay	INTEGER	2	x10
P14.13	161	1	232	Master Outgoing Reference	BYTE	1	x0
P14.14	161	1	233	M/F COMM T-OUT	INTEGER	2	x0
P14.15	161	1	234	M/F COMM Fault Response	BYTE	1	x0
P14.16	161	1	235	Follower Error Response	BYTE	1	x0
P14.17	161	1	236	Supervision Response	BYTE	1	x0
P14.18	161	1	237	Limit Reached Response	BYTE	1	x0
P14.19	161	1	238	Follower Stop Mode	BYTE	1	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P14.20	161	1	239	Speed Ratio		4	x0
P14.21	161	1	240	Speed Multiplier	INTEGER	2	x1000
P14.22	161	1	241	Speed Ratio Ramp Time	DOUBLE	4	x0
P15.1	162	1	224	Jog Enable	BYTE	1	x0
P15.2	161	1	242	Jog Direction	BYTE	1	x0
P15.3	161	1	243	Jog 1 Start Source	BYTE	1	x0
P15.4	161	1	172	Jog1/Inch1 Ref	DOUBLE	4	x100
P15.5	161	1	244	Jog1/Inch1 Acc time	INTEGER	2	x10
P15.6	161	1	245	Jog1/Inch1 Dec time	INTEGER	2	x10
P15.7	161	1	246	Jog 2 Start Source	BYTE	1	x0
P15.8	161	1	173	Jog2/Inch2 Ref	DOUBLE	4	x100
P15.9	161	1	247	Jog2/Inch2 Acc time	INTEGER	2	x10
P15.10	161	1	248	Jog2/Inch2 Dec time	INTEGER	2	x10
P16.1	161	1	249	Inch Enable	BYTE	1	x0
P16.2	161	1	250	Inch Direction	BYTE	1	x0
P16.3	162	1	1	Inch 1 Start Source	BYTE	1	x0
P16.4	162	1	2	Inch 2 Start Source	BYTE	1	x0
P22.1.1	NA	NA	NA	Force Bypass	BYTE	1	x0
P22.1.2	NA	NA	NA	Bypass Overload	BYTE	1	x0
P22.1.3	NA	NA	NA	Bypass Enable	BYTE	1	x0
P22.1.4	NA	NA	NA	Bypass Start Delay	INTEGER	2	x0
P22.2.1	NA	NA	NA	Auto Bypass	BYTE	1	x0
P22.2.2	NA	NA	NA	Auto Bypass Delay	INTEGER	2	x0
P22.2.3	NA	NA	NA	OverCurrent Bypass Enable	BYTE	1	x0
P22.2.4	NA	NA	NA	IGBT Fault Bypas Enable	BYTE	1	x0
P22.2.5	NA	NA	NA	4mA Fault Bypass Enable	BYTE	1	x0
P22.2.6	NA	NA	NA	UnderVoltage Bypass Enable	BYTE	1	x0
P22.2.7	NA	NA	NA	OverVoltage Bypass Enable	BYTE	1	x0
P22.2.8	NA	NA	NA	Motor OverTemp Bypass Enable	BYTE	1	x0
P22.2.9	NA	NA	NA	UnderLoad Bypass Enable	BYTE	1	x0
P22.2.10	NA	NA	NA	External Bypass Enable	BYTE	1	x0
P22.2.11	NA	NA	NA	Charge Switch Fault Bypass Enable	BYTE	1	x0
P22.2.12	NA	NA	NA	Saturation Trip Fault Bypass Enable	BYTE	1	x0
P22.2.13	NA	NA	NA	Under Temp Fault Bypass Enable	BYTE	1	x0
P22.2.14	NA	NA	NA	EEPROM Fault Bypass Enable	BYTE	1	x0
P22.2.15	NA	NA	NA	Control Board EEPROM Fault Bypass Enable	BYTE	1	x0
P22.2.16	NA	NA	NA	Watchdog Fault Bypass Enable	BYTE	1	x0
P22.2.17	NA	NA	NA	Fan Cooling Fault Bypass Enable	BYTE	1	x0
P22.2.18	NA	NA	NA	Keypad Com Fault Bypass Enable	BYTE	1	x0
P22.2.19	NA	NA	NA	Option Card Fault Bypass Enable	BYTE	1	x0
P22.2.20	NA	NA	NA	RTC Clock Fault Bypass Enable	BYTE	1	x0
P22.2.21	NA	NA	NA	Ctrl Board OverTemp Fault Bypass Enable	BYTE	1	x0
P22.2.22	NA	NA	NA	Fieldbus Fault Bypass Enable	BYTE	1	x0
P22.2.23	NA	NA	NA	Op Cont Interlock Fault Bypass Enable	BYTE	1	x0
P23.1.2	NA	NA	NA	Brake Chopper Mode	BYTE	1	x0
P23.1.3	NA	NA	NA	Brake Chopper Status	BYTE	1	x0
P23.1.4	NA	NA	NA	Brake Resistor Status	BYTE	1	x0
P23.1.5	NA	NA	NA	DC-Brake Current	INTEGER	2	x10
P23.1.6	NA	NA	NA	Start DC-Brake Time	INTEGER	2	x100

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P23.1.7	NA	NA	NA	Stop DC-Brake Frequency	INTEGER	2	x100
P23.1.8	NA	NA	NA	Stop DC-Brake Time	INTEGER	2	x100
P23.1.9	NA	NA	NA	Flux Brake	BYTE	1	x0
P23.1.10	NA	NA	NA	Flux Brake Current	INTEGER	2	x10
P23.2.1	NA	NA	NA	DC Brake Active	BYTE	1	x0
P24.1	160	1	54	Ext Brake Off Delay	INTEGER	2	x10
P24.2	160	1	55	Ext Brake On Delay	INTEGER	2	x10
P25.1.1	160	1	30	Ext. Fault 1 NC	BYTE	1	x0
P25.1.2	160	1	29	Ext. Fault 1 NO	BYTE	1	x0
P25.1.3	161	1	118	Ext. Fault 2 NC	BYTE	1	x0
P25.1.4	161	1	117	Ext. Fault 2 NO	BYTE	1	x0
P25.1.5	161	1	120	Ext. Fault 3 NC	BYTE	1	x0
P25.1.6	161	1	119	Ext. Fault 3 NO	BYTE	1	x0
P25.2.1	NA	NA	NA	Ext. Fault 1 Text	BYTE	1	x0
P25.2.2	NA	NA	NA	Ext. Fault 2 Text	BYTE	1	x0
P25.2.3	NA	NA	NA	Ext. Fault 3 Text	BYTE	1	x0
P26.1.1	160	1	237	Line Start Lockout	BYTE	1	x0
P26.1.2	160	1	87	Input Phase Fault	BYTE	1	x0
P26.1.3	160	1	72	4mA Input Fault	BYTE	1	x0
P26.1.4	160	1	73	4mA Fault Frequency	INTEGER	2	x100
P26.1.5	160	1	86	External Fault	BYTE	1	x0
P26.1.6	162	1	3	Under Voltage Trip Level	INTEGER	2	x0
P26.1.7	160	1	90	Uvolt Fault Response	BYTE	1	x0
P26.1.8	161	1	50	Unit Under Temp Prot	BYTE	1	x0
P26.1.9	161	1	137	Safe Torque Off Response	BYTE	1	x0
P26.1.12	161	1	98	Under Temp Fault Override	BYTE	1	x0
P26.1.13	160	1	91	RTC Fault	BYTE	1	x0
P26.1.14	160	1	92	PT100 Fault Response	BYTE	1	x0
P26.1.15	160	1	242	Replace Battery Fault Response	BYTE	1	x0
P26.1.16	160	1	243	Replace Fan Fault Response	BYTE	1	x0
P26.1.17	161	1	99	Preheat Output Volt	BYTE	1	x10
P26.1.18	NA	NA	NA	Warning Operation Mode	BYTE	1	x0
P26.1.19	NA	NA	NA	Fan Protection	BYTE	1	x0
P26.1.20	NA	NA	NA	AI-Fault Protection	BYTE	1	x0
P26.1.21	NA	NA	NA	AI Fault Frequency	INTEGER	2	x100
P26.1.22	NA	NA	NA	CP Interlock NC	BYTE	1	x0
P26.1.23	NA	NA	NA	CP Interlock Run Protection	BYTE	1	x0
P26.1.24	NA	NA	NA	CP Interlock Stop Protection	BYTE	1	x0
P26.1.25	NA	NA	NA	CP Interlock Attempts	BYTE	1	x0
P26.2.1	NA	NA	NA	Output Phase Fault	BYTE	1	x0
P26.2.2	NA	NA	NA	Ground Fault	BYTE	1	x0
P26.2.3	NA	NA	NA	Ground Fault Limit	BYTE	1	x0
P26.2.4	160	1	82	Motor Thermal Protection	BYTE	1	x0
P26.2.5	160	1	83	Motor Thermal F0 Current	INTEGER	2	x10
P26.2.8	160	1	89	Thermistor Fault Response	BYTE	1	x0
P26.2.9	160	1	74	Stall Protection	BYTE	1	x0
P26.2.10	160	1	75	Stall Current Limit	INTEGER	2	x10
P26.2.11	160	1	76	Stall Time Limit	INTEGER	2	x10
P26.2.12	160	1	77	Stall Frequency Limit	INTEGER	2	x100

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P26.2.13	160	1	78	Underload Protection	BYTE	1	x0
P26.2.14	160	1	79	Underload Fnom Torque	INTEGER	2	x10
P26.2.15	160	1	80	Underload F0 Torque	INTEGER	2	x10
P26.2.16	160	1	81	Underload Time Limit	INTEGER	2	x100
P26.2.17	NA	NA	NA	Thermistor Check Enable	BYTE	1	x0
P26.3.1	162	1	250	Fieldbus Fault Response	BYTE	1	x0
P26.3.2	160	1	85	OPTCard Fault Response	BYTE	1	x0
P26.3.3	161	1	49	IP Address Confliction Resp	BYTE	1	x0
P26.3.4	NA	NA	NA	Card Plug Slot Error Fault Protection	BYTE	1	x0
P26.10.1	161	1	136	PID Feedback AI Loss Attempts	BYTE	1	x0
P26.10.2	161	1	132	PID Feedback AI Loss Response	BYTE	1	x0
P26.10.3	161	1	133	PID Feedback AI Loss Pre Freq	INTEGER	2	x100
P26.10.4	161	1	134	PID Feedback AI Loss Pipe Fill Loss Level	INTEGER	2	x10
P26.10.5	161	1	135	PID Feedback AI Loss PreFreq Timeout	INTEGER	2	x0
P26.12.1	162	1	4	PID2 Feedback AI Loss Attempts	BYTE	1	x0
P26.12.2	162	1	5	PID2 Feedback AI Loss Response	BYTE	1	x0
P26.12.3	162	1	6	PID2 Feedback AI Loss Pre Freq	INTEGER	2	x100
P26.12.4	162	1	7	PID2 Feedback AI Loss Pipe Fill Loss Level	INTEGER	2	x10
P26.12.5	162	1	8	PID2 Feedback AI Loss PreFreq Timeout	INTEGER	2	x0
P26.20.1	161	1	162	Prime Pump Enable	BYTE	1	x0
P26.20.2	161	1	163	Prime Pump Level	DOUBLE	4	x100
P26.20.3	162	1	202	Prime Pump Frequency	INTEGER	2	x100
P26.20.4	161	1	164	Prime Pump Delay Time	INTEGER	2	x10
P26.20.5	161	1	165	Prime Pump Loss Of Prime Level	INTEGER	2	x10
P26.20.6	161	1	166	Prime Pump Level 2	DOUBLE	4	x100
P26.20.7	162	1	203	Prime Pump Frequency 2	INTEGER	2	x100
P26.20.8	161	1	167	Prime Pump Delay Time 2	INTEGER	2	x10
P26.20.9	161	1	168	Prime Pump Loss Of Prime Level 2	INTEGER	2	x10
P26.21.1	161	1	161	Pipe Fill Loss Response	BYTE	1	x0
P26.21.2	161	1	160	Pipe Fill Loss Detection Method	BYTE	1	x0
P26.21.4	NA	NA	NA	Pipe Fill Loss Frequency	INTEGER	2	x100
P26.21.7	NA	NA	NA	Pipe Fill Loss Time	INTEGER	2	x0
P26.21.8	NA	NA	NA	Pipe Fill Loss Attempts	BYTE	1	x0
P27.1.1	NA	NA	NA	AI Supv Select	BYTE	1	x0
P27.1.2	NA	NA	NA	AI Limit Supv	BYTE	1	x0
P27.1.4	NA	NA	NA	AI Limit Supv Val	INTEGER	2	x100
P27.1.5	NA	NA	NA	AI Supv Hyst	INTEGER	2	x100
P27.1.6	NA	NA	NA	Second AI Supv Select	BYTE	1	x0
P27.1.7	NA	NA	NA	Second AI Limit Supv	BYTE	1	x0
P27.1.9	NA	NA	NA	Second AI Limit Supv Val	INTEGER	2	x100
P27.1.10	NA	NA	NA	Second AI Supv Hyst	INTEGER	2	x100
P27.7.1	NA	NA	NA	Temp Limit Supv	BYTE	1	x0
P27.7.3	NA	NA	NA	Temp Limit Supv Val	INTEGER	2	x10
P27.7.4	NA	NA	NA	Temp Limit Supv Hyst	INTEGER	2	x10
P27.8.1	NA	NA	NA	Power Limit Supv	BYTE	1	x0
P27.8.3	NA	NA	NA	Power Limit Supv Val	INTEGER	2	x10
P27.8.4	NA	NA	NA	Power Limit Supv Hyst	INTEGER	2	x10
P27.8.5	NA	NA	NA	Torque Limit Supv	BYTE	1	x0
P27.8.7	NA	NA	NA	Torque Limit Supv Val	INTEGER	2	x10

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P27.8.8	NA	NA	NA	Torque Limit Supv Hyst	INTEGER	2	x10
P27.8.9	NA	NA	NA	Motor Current 1 Supv	BYTE	1	x0
P27.8.11	162	1	200	Motor Current 1 Supv Value	INTEGER	2	x10
P27.8.12	161	1	126	Motor Current 1 Supv Hyst	BYTE	1	x10
P27.8.13	161	1	125	Motor Current 2 Supv	BYTE	1	x0
P27.8.15	162	1	201	Motor Current 2 Supv Value	INTEGER	2	x10
P27.8.16	161	1	127	Motor Current 2 Supv Hyst	BYTE	1	x10
P27.8.17	160	1	48	Freq Limit 1 Supv	BYTE	1	x0
P27.8.19	160	1	49	Freq Limit 1 Supv Val	INTEGER	2	x100
P27.8.20	161	1	128	Freq Limit 1 Supv Hyst	INTEGER	2	x100
P27.8.21	160	1	50	Freq Limit 2 Supv	BYTE	1	x0
P27.8.23	160	1	51	Freq Limit 2 Supv Val	INTEGER	2	x100
P27.8.24	161	1	129	Freq Limit 2 Supv Hyst	INTEGER	2	x100
P27.8.25	160	1	52	Ref Limit Supv	BYTE	1	x0
P27.8.27	160	1	53	Ref Limit Supv Val	INTEGER	2	x100
P27.8.28	161	1	130	Ref Limit Supv Hyst	INTEGER	2	x100
P27.8.29	NA	NA	NA	Speed Limit Supervision	BYTE	1	x0
P27.8.30	NA	NA	NA	Speed Limit Supervised Value	INTEGER	2	x0
P27.8.31	NA	NA	NA	Speed Limit Supervised Hysteresis	INTEGER	2	x0
P27.10.1	160	1	144	PID1 Superv Enable	BYTE	1	x0
P27.10.3	160	1	145	PID1 Superv Upper Limit	DOUBLE	4	x100
P27.10.4	160	1	146	PID1 Superv Lower Limit	DOUBLE	4	x100
P27.10.5	160	1	147	PID1 Superv Delay	INTEGER	2	x0
P27.11.1	160	1	193	PID2 Superv Enable	BYTE	1	x0
P27.11.3	160	1	194	PID2 Superv Upper Limit	DOUBLE	4	x100
P27.11.4	160	1	195	PID2 Superv Lower Limit	DOUBLE	4	x100
P27.11.5	160	1	196	PID2 Superv Delay	INTEGER	2	x0
P30.1.1	NA	NA	NA	Start Timer 1	BYTE	1	x0
P30.1.2	NA	NA	NA	Start Timer 2	BYTE	1	x0
P30.1.3	NA	NA	NA	Start Timer 3	BYTE	1	x0
P30.2.1	NA	NA	NA	TC1, TC2, TC3	BYTE	1	x0
P30.2.2	NA	NA	NA	Timer 1	DOUBLE	4	x0
P30.2.3	NA	NA	NA	Timer 2	DOUBLE	4	x0
P30.2.4	NA	NA	NA	Timer 3	DOUBLE	4	x0
P30.2.5	NA	NA	NA	Timer 1 Duration	DOUBLE	4	x0
P30.2.6	NA	NA	NA	Timer 1 Channel	BYTE	1	x0
P30.2.7	NA	NA	NA	Timer 2 Duration	DOUBLE	4	x0
P30.2.8	NA	NA	NA	Timer 2 Channel	BYTE	1	x0
P30.2.9	NA	NA	NA	Timer 3 Duration	DOUBLE	4	x0
P30.2.10	NA	NA	NA	Timer 3 Channel	BYTE	1	x0
P30.3.1	NA	NA	NA	Interval 1	BYTE	1	x0
P30.3.2	NA	NA	NA	Interval 2	BYTE	1	x0
P30.3.3	NA	NA	NA	Interval 3	BYTE	1	x0
P30.3.4	NA	NA	NA	Interval 4	BYTE	1	x0
P30.3.5	NA	NA	NA	Interval 5	BYTE	1	x0
P30.4.1	NA	NA	NA	Interval 1 Setting	BYTE	1	x0
P30.4.2	NA	NA	NA	Interval 2 Setting	BYTE	1	x0
P30.4.3	NA	NA	NA	Interval 3 Setting	BYTE	1	x0
P30.4.4	NA	NA	NA	Interval 4 Setting	BYTE	1	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P30.4.5	NA	NA	NA	Interval 5 Setting	BYTE	1	x0
P30.5.1	NA	NA	NA	Interval 1 On Time	BYTE	3	x0
P30.5.2	NA	NA	NA	Interval 1 Off Time	BYTE	3	x0
P30.5.3	NA	NA	NA	Interval 1 From Day	BYTE	1	x0
P30.5.4	NA	NA	NA	Interval 1 To Day	BYTE	1	x0
P30.5.5	NA	NA	NA	Interval 1 Channel	BYTE	1	x0
P30.5.6	NA	NA	NA	Interval 2 On Time	BYTE	3	x0
P30.5.7	NA	NA	NA	Interval 2 Off Time	BYTE	3	x0
P30.5.8	NA	NA	NA	Interval 2 From Day	BYTE	1	x0
P30.5.9	NA	NA	NA	Interval 2 To Day	BYTE	1	x0
P30.5.10	NA	NA	NA	Interval 2 Channel	BYTE	1	x0
P30.5.11	NA	NA	NA	Interval 3 On Time	BYTE	3	x0
P30.5.12	NA	NA	NA	Interval 3 Off Time	BYTE	3	x0
P30.5.13	NA	NA	NA	Interval 3 From Day	BYTE	1	x0
P30.5.14	NA	NA	NA	Interval 3 To Day	BYTE	1	x0
P30.5.15	NA	NA	NA	Interval 3 Channel	BYTE	1	x0
P30.5.16	NA	NA	NA	Interval 4 On Time	BYTE	3	x0
P30.5.17	NA	NA	NA	Interval 4 Off Time	BYTE	3	x0
P30.5.18	NA	NA	NA	Interval 4 From Day	BYTE	1	x0
P30.5.19	NA	NA	NA	Interval 4 To Day	BYTE	1	x0
P30.5.20	NA	NA	NA	Interval 4 Channel	BYTE	1	x0
P30.5.21	NA	NA	NA	Interval 5 On Time	BYTE	3	x0
P30.5.22	NA	NA	NA	Interval 5 Off Time	BYTE	3	x0
P30.5.23	NA	NA	NA	Interval 5 From Day	BYTE	1	x0
P30.5.24	NA	NA	NA	Interval 5 To Day	BYTE	1	x0
P30.5.25	NA	NA	NA	Interval 5 Channel	BYTE	1	x0
P40.1.1	160	1	78	Underload Protection	BYTE	1	x0
P40.1.2	160	1	79	Underload Fnom Torque	INTEGER	2	x10
P40.1.3	160	1	80	Underload F0 Torque	INTEGER	2	x10
P40.1.4	160	1	81	Underload Time Limit	INTEGER	2	x100
P40.2.1	NA	NA	NA	Damper Start	BYTE	1	x0
P40.2.2	NA	NA	NA	Damper Time Out	INTEGER	2	x0
P40.2.3	NA	NA	NA	Damper Delay	INTEGER	2	x0
P41.1.1	NA	NA	NA	Valve Start	BYTE	1	x0
P41.1.2	NA	NA	NA	Valve Time Out	INTEGER	2	x0
P41.1.3	NA	NA	NA	Valve Delay	INTEGER	2	x0
P41.1.4	161	1	115	Run Delay Time	INTEGER	2	x0
P41.1.5	NA	NA	NA	Minimum Run Time	INTEGER	2	x0
P41.2.1	NA	NA	NA	Deragging Enable	BYTE	1	x0
P41.2.2	NA	NA	NA	Derag Cycles	BYTE	1	x0
P41.2.3	NA	NA	NA	Derag At Start/Stop	BYTE	1	x0
P41.2.4	NA	NA	NA	Deragging Run Time	INTEGER	2	x0
P41.2.5	NA	NA	NA	Derag Speed	INTEGER	2	x100
P41.2.6	NA	NA	NA	Derag Off Delay	INTEGER	2	x0
P41.3.1	NA	NA	NA	Multi-pump Mode	BYTE	1	x0
P41.3.2	NA	NA	NA	Multi-pump Mode 2	BYTE	1	x0
P41.3.3	NA	NA	NA	Multi-pump Mode 1/2 Select	BYTE	1	x0
P41.3.4	NA	NA	NA	Number Of Drives	BYTE	1	x0
P41.3.5	NA	NA	NA	Drive ID	BYTE	1	x0
P41.3.6	NA	NA	NA	PID Bandwidth	DOUBLE	4	x100

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P41.3.7	NA	NA	NA	Staging Frequency	INTEGER	2	x100
P41.3.8	NA	NA	NA	De-Staging Frequency	INTEGER	2	x100
P41.3.9	NA	NA	NA	Add/Remove Delay	INTEGER	2	x0
P41.3.10	NA	NA	NA	Interlock Enable	BYTE	1	x0
P41.3.11	NA	NA	NA	OP Cont Interlock Attempts	BYTE	1	x0
P41.3.12	NA	NA	NA	OP Cont Interlock Protection	BYTE	1	x0
P41.3.13	NA	NA	NA	OP Cont Interlock NC	BYTE	1	x0
P41.3.14	NA	NA	NA	OP Cont Interlock NO	BYTE	1	x0
P41.3.15	160	1	42	Motor Interlock 1	BYTE	1	x0
P41.3.16	NA	NA	NA	Motor Interlock 2	BYTE	1	x0
P41.3.17	NA	NA	NA	Motor Interlock 3	BYTE	1	x0
P41.3.18	NA	NA	NA	Motor Interlock 4	BYTE	1	x0
P41.3.19	NA	NA	NA	Motor Interlock 5	BYTE	1	x0
P41.4.1	NA	NA	NA	Regulation Source	BYTE	1	x0
P41.4.2	NA	NA	NA	Recovery Method	BYTE	1	x0
P41.4.3	NA	NA	NA	Add/Remove Drive Selection	BYTE	1	x0
P41.4.4	NA	NA	NA	Run Time Enable	BYTE	1	x0
P41.4.5	NA	NA	NA	Run Time Limit	DOUBLE	4	x10
P41.4.6	NA	NA	NA	Run Time Reset	BYTE	1	x0
P41.4.7	NA	NA	NA	Master Drive Mode	BYTE	1	x0
P41.4.8	NA	NA	NA	Master Fixed Speed	INTEGER	2	x100
P41.4.9	NA	NA	NA	Master Fixed Speed Delay	INTEGER	2	x0
P41.5.1	NA	NA	NA	Redundant Drive Enable	BYTE	1	x0
P41.5.2	NA	NA	NA	Redundant Run Time Enable	BYTE	1	x0
P41.5.3	NA	NA	NA	Redundant Run Time Reset	BYTE	1	x0
P41.5.4	NA	NA	NA	Redundant RunTime Limit	DOUBLE	4	x100
P41.6.1	NA	NA	NA	Number Of Pumps	BYTE	1	x0
P41.6.2	NA	NA	NA	Include Freq Converter	BYTE	1	x0
P41.6.3	NA	NA	NA	Auto-Change Enable	BYTE	1	x0
P41.6.4	NA	NA	NA	Auto-Change Interval	INTEGER	2	x10
P41.6.5	NA	NA	NA	Auto-Change Freq Limit	INTEGER	2	x100
P41.6.6	NA	NA	NA	Auto-Change Pump Limit	BYTE	1	x0
P41.7.1	NA	NA	NA	Pipe Fill Aux Pump Select	BYTE	1	x0
P41.7.2	NA	NA	NA	Pipe Fill Aux Pump Run Time	INTEGER	2	x10
P41.7.3	NA	NA	NA	Pipe Fill Aux Pump Operation	BYTE	1	x0
P41.7.4	NA	NA	NA	Pipe Fill Aux Pump Delay	INTEGER	2	x10
P41.7.5	NA	NA	NA	Callback Source	BYTE	1	x0
P41.7.6	NA	NA	NA	Pipe Fill Loss Level	INTEGER	2	x10
P41.8.1	NA	NA	NA	Jockey Pump Enable	BYTE	1	x0
P41.8.2	NA	NA	NA	Jockey Start Level	DOUBLE	4	x100
P41.8.3	NA	NA	NA	Jockey Stop Level	DOUBLE	4	x100
P41.9.1	NA	NA	NA	Lube Pump Enable	BYTE	1	x0
P41.9.2	NA	NA	NA	Lube Pump Time	INTEGER	2	x10
P41.10.1	NA	NA	NA	Broken Pipe Fault Response	BYTE	1	x0
P41.10.2	NA	NA	NA	Broken Pipe Level	INTEGER	2	x10
P41.10.3	NA	NA	NA	Broken Pipe Delay	INTEGER	2	x10
P41.10.4	NA	NA	NA	Broken Pipe Frequency	INTEGER	2	x100
P80.1.1	160	1	238	Logic Function Select	BYTE	1	x0
P80.1.2	160	1	239	Logic Operation Input A	BYTE	1	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P80.1.3	160	1	240	Logic Operation Input B	BYTE	1	x0
P81.1	NA	NA	NA	Logic Engine Control	BYTE	1	x0
P81.2	NA	NA	NA	Logic Engine Status	BYTE	1	x0
P95.1.1	NA	NA	NA	Multimonitor Set	BYTE	1	x0
P95.1.3	NA	NA	NA	Keypad Direction	BYTE	1	x0
P95.1.4	NA	NA	NA	Keypad Stop	BYTE	1	x0
P95.1.7	NA	NA	NA	Default Page	BYTE	1	x0
P95.1.8	NA	NA	NA	Keypad Comm Fault Response	BYTE	1	x0
P95.1.9	NA	NA	NA	Timeout Time	INTEGER	2	x0
P95.1.10	NA	NA	NA	Contrast Adjust	BYTE	1	x0
P95.1.11	NA	NA	NA	Backlight Time	INTEGER	2	x0
P95.1.12	NA	NA	NA	Fan Control	BYTE	1	x0
P95.1.13	NA	NA	NA	Keypad ACK Timeout	INTEGER	2	x0
P95.1.14	NA	NA	NA	Keypad Retry Number	BYTE	1	x0
P95.1.15	NA	NA	NA	Keypad Lock Password	INTEGER	2	x0
P95.1.17	NA	NA	NA	Jog Softkey Hidden	BYTE	1	x0
P95.1.18	NA	NA	NA	Reverse Softkey Hidden	BYTE	1	x0
P95.2.1	NA	NA	NA	Output Display Unit	BYTE	1	x0
P95.2.2	NA	NA	NA	Output Display Unit Min	DOUBLE	4	x100
P95.2.3	NA	NA	NA	Output Display Unit Max	DOUBLE	4	x100
P95.3.1	NA	NA	NA	Touch Screen Backlight Time	BYTE	1	x10
P95.3.2	NA	NA	NA	Backlight Brightness	BYTE	1	x0
P96.1.1	161	1	37	FB Process Data Input 1 Sel	INTEGER	2	x0
P96.1.2	161	1	38	FB Process Data Input 2 Sel	INTEGER	2	x0
P96.1.3	161	1	39	FB Process Data Input 3 Sel	INTEGER	2	x0
P96.1.4	161	1	40	FB Process Data Input 4 Sel	INTEGER	2	x0
P96.1.5	161	1	41	FB Process Data Input 5 Sel	INTEGER	2	x0
P96.1.6	161	1	42	FB Process Data Input 6 Sel	INTEGER	2	x0
P96.1.7	161	1	43	FB Process Data Input 7 Sel	INTEGER	2	x0
P96.1.8	161	1	44	FB Process Data Input 8 Sel	INTEGER	2	x0
P96.1.9	161	1	45	FB Process Data Input 9 Sel	INTEGER	2	x0
P96.1.10	161	1	46	FB Process Data Input 10 Sel	INTEGER	2	x0
P96.1.11	161	1	47	FB Process Data Input 11 Sel	INTEGER	2	x0
P96.1.12	161	1	48	FB Process Data Input 12 Sel	INTEGER	2	x0
P96.2.1	161	1	25	FB Process Data Output 1 Sel	INTEGER	2	x0
P96.2.2	161	1	26	FB Process Data Output 2 Sel	INTEGER	2	x0
P96.2.3	161	1	27	FB Process Data Output 3 Sel	INTEGER	2	x0
P96.2.4	161	1	28	FB Process Data Output 4 Sel	INTEGER	2	x0
P96.2.5	161	1	29	FB Process Data Output 5 Sel	INTEGER	2	x0
P96.2.6	161	1	30	FB Process Data Output 6 Sel	INTEGER	2	x0
P96.2.7	161	1	31	FB Process Data Output 7 Sel	INTEGER	2	x0
P96.2.8	161	1	32	FB Process Data Output 8 Sel	INTEGER	2	x0
P96.2.9	161	1	33	FB Process Data Output 9 Sel	INTEGER	2	x0
P96.2.10	161	1	34	FB Process Data Output 10 Sel	INTEGER	2	x0
P96.2.11	161	1	35	FB Process Data Output 11 Sel	INTEGER	2	x0
P96.2.12	161	1	36	FB Process Data Output 12 Sel	INTEGER	2	x0
P96.3.1	161	1	101	Standard Status Word Bit0 Function Select	BYTE	1	x0
P96.3.2	161	1	102	Standard Status Word Bit1 Function Select	BYTE	1	x0
P96.3.3	161	1	103	Standard Status Word Bit2 Function Select	BYTE	1	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P96.3.4	161	1	104	Standard Status Word Bit3 Function Select	BYTE	1	x0
P96.3.5	161	1	105	Standard Status Word Bit4 Function Select	BYTE	1	x0
P96.3.6	161	1	106	Standard Status Word Bit5 Function Select	BYTE	1	x0
P96.3.7	161	1	107	Standard Status Word Bit6 Function Select	BYTE	1	x0
P96.3.8	161	1	108	Standard Status Word Bit7 Function Select	BYTE	1	x0
P96.4.1	NA	NA	NA	RS485 Comm Set	BYTE	1	x0
P96.4.2	NA	NA	NA	Modbus RTU Protocol Status	BYTE	1	x0
P96.4.3	NA	NA	NA	RS485 Terminal Resistance Connect	BYTE	1	x0
P96.5.1	160	1	222	IP Address Mode	BYTE	1	x0
P96.5.2	160	1	226	Active IP Address	BYTE	4	x0
P96.5.3	160	1	227	Active Subnet Mask	BYTE	4	x0
P96.5.4	160	1	228	Active Default Gateway	BYTE	4	x0
P96.5.5	NA	NA	NA	MAC Address	BYTE	6	x0
P96.5.6	160	1	223	Static IP Address	BYTE	4	x0
P96.5.7	160	1	224	Static Subnet Mask	BYTE	4	x0
P96.5.8	160	1	225	Static Default Gateway	BYTE	4	x0
P96.6.1	NA	NA	NA	WebUI Enable	BYTE	1	x0
P96.6.2	NA	NA	NA	Trusted IP White List	BYTE	12	x0
P96.6.3	NA	NA	NA	Web Service Enable	BYTE	1	x0
P96.6.4	NA	NA	NA	Modbus TCP Trusted IP Enable	BYTE	1	x0
P96.6.5	NA	NA	NA	Modbus TCP Enable	BYTE	1	x0
P96.7.1	NA	NA	NA	Bluetooth Enable	BYTE	1	x0
P96.7.2	NA	NA	NA	Bluetooth Broadcast Mode	BYTE	1	x0
P96.7.3	NA	NA	NA	Bluetooth Pairing Reset	BYTE	1	x0
P96.7.4	NA	NA	NA	Bluetooth Connect Status	BYTE	1	x0
P96.8.1	NA	NA	NA	IOT Enable	BYTE	1	x0
P96.8.2	NA	NA	NA	IOT Connection Status	BYTE	1	x0
P96.8.3	NA	NA	NA	SNTP Server Status	BYTE	1	x0
P96.8.4	NA	NA	NA	Proxy Enable	BYTE	1	x0
P96.8.5	NA	NA	NA	SNTP Enable	BYTE	1	x0
P96.8.6	NA	NA	NA	SNTP Server 1	BYTE	4	x0
P96.8.7	NA	NA	NA	SNTP Server 2	BYTE	4	x0
P96.8.8	NA	NA	NA	SNTP Server 3	BYTE	4	x0
P96.8.9	NA	NA	NA	Sntp Update Time	DOUBLE	4	x0
P96.8.10	NA	NA	NA	Sntp Retry Time	INTEGER	2	x0
P96.9.1	NA	NA	NA	Baud Rate	BYTE	1	x0
P96.9.2	NA	NA	NA	Parity Type And Stop Bit	BYTE	1	x0
P96.9.3	NA	NA	NA	Comm Timeout Modbus RTU	INTEGER	2	x0
P96.9.4	NA	NA	NA	Slave Address	BYTE	1	x0
P96.9.5	NA	NA	NA	Modbus RTU Fault Response	BYTE	1	x0
P96.13.1	NA	NA	NA	Connection Limit	BYTE	1	x0
P96.13.2	NA	NA	NA	Modbus TCP Unit ID	BYTE	1	x0
P96.13.3	NA	NA	NA	Comm Timeout Modbus TCP	INTEGER	2	x0
P96.13.4	NA	NA	NA	Modbus TCP Protocol Status	BYTE	1	x0
P96.13.5	NA	NA	NA	Modbus TCP Fault Response	BYTE	1	x0
P96.13.6	NA	NA	NA	TCP Fieldbus Fault Response	BYTE	1	x0
P96.16.1	NA	NA	NA	WebUI Protocol Status	BYTE	1	x0
P96.16.2	NA	NA	NA	WebUI Fault Response	BYTE	1	x0
P96.16.3	NA	NA	NA	WebUI Communication Timeout	INTEGER	2	x0
P96.16.4	NA	NA	NA	WebUI Fieldbus Fault Response	BYTE	1	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
P98.1	NA	NA	NA	User Access Level	BYTE	1	x0
P98.2	NA	NA	NA	Operator Level Password		16	x0
P98.3	NA	NA	NA	Installer Level Password		16	x0
P98.5	NA	NA	NA	User Access Level Password Timeout	BYTE	1	x0
P98.6	NA	NA	NA	User Access Level Logout	BYTE	1	x0
P99.1.1	NA	NA	NA	Language	BYTE	1	x0
P99.1.3	NA	NA	NA	Password	INTEGER	2	x0
P99.1.4	NA	NA	NA	Parameter Lock	BYTE	1	x0
P99.1.5	NA	NA	NA	Startup Wizard	BYTE	1	x0
P99.2.1	161	1	121	Parameter Set1/2 Sel	BYTE	1	x0
P99.2.2	160	1	35	No Access To Param	BYTE	1	x0
P99.2.3	161	1	174	Parameter Sets	INTEGER	2	x0
P99.2.4	160	1	234	Up To Keypad	BYTE	1	x0
P99.2.5	160	1	235	Down From Keypad	BYTE	1	x0
P99.2.6	160	1	236	Parameter Comparison	BYTE	1	x0
P99.3.1	162	1	204	Real Time Clock	BYTE	6	x0
P99.3.2	162	1	205	Daylight Saving	BYTE	1	x0
P99.3.3	162	1	206	RTC Battery Status	BYTE	1	x0
P99.3.4	NA	NA	NA	Drive Time Offset	BYTE	1	x0
P99.4.1	NA	NA	NA	Keypad Software Version	INTEGER	4	x0
P99.4.2	NA	NA	NA	Motor Control Software Version	INTEGER	4	x0
P99.4.3	1	1	4	Application Software Version	INTEGER	4	x0
P99.4.4	NA	NA	NA	Software Bundle Version		20	x0
P99.4.5	NA	NA	NA	Diagnostic Software Version	INTEGER	4	x0
P99.5.1	1	1	6	Serial Number	DOUBLE	4	x0
P99.5.2	NA	NA	NA	Power Unit Serial Number	DOUBLE	4	x0
P99.5.3	NA	NA	NA	Control Unit Serial Number	DOUBLE	4	x0
P99.6.1	NA	NA	NA	Currency	BYTE	1	x0
P99.6.2	NA	NA	NA	Energy Cost	INTEGER	2	x100
P99.6.3	NA	NA	NA	Data Type	BYTE	1	x0
P99.6.4	NA	NA	NA	Energy Savings Reset	BYTE	1	x0
P99.7.1	NA	NA	NA	SD Card Copy Operation	BYTE	1	x0
P99.7.2	NA	NA	NA	SD Card Download Operation	BYTE	1	x0
P99.7.3	NA	NA	NA	SD Card Firmware Upgrade Select	BYTE	1	x0
P99.7.4	NA	NA	NA	SD Upgrade language 1 selection	BYTE	1	x0
P99.7.5	NA	NA	NA	SD Upgrade language 2 selection	BYTE	1	x0
P99.8.1	NA	NA	NA	Clear Trip MWh Count	BYTE	1	x0
P99.8.2	NA	NA	NA	Clear Trip Power Count	BYTE	1	x0
B2.1.1	162	1	26	Board Status	BYTE	1	x0
B2.1.2	162	1	29	Slot A: FW Version	INTEGER	4	x0
B2.1.3	162	1	30	DI101-103 Status (3DI/3DO/1Th)	BYTE	1	x0
B2.1.4	162	1	31	DO101-103 Status (3DI/3DO/1Th)	BYTE	1	x0
B2.1.5	162	1	32	Thermistor101 Resistance	DOUBLE	4	x0
B2.1.6	162	1	33	Thermistor101 State	BYTE	1	x0
B2.2.1	162	1	34	DO101 Function	BYTE	1	x0
B2.2.2	162	1	35	DO102 Function	BYTE	1	x0
B2.2.3	162	1	36	DO103 Function	BYTE	1	x0
B2.2.4	162	1	37	Thermistor101 Mode	BYTE	1	x0
B3.1.1	162	1	26	Board Status	BYTE	1	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
B3.1.2	162	1	29	Slot A: FW Version	INTEGER	4	x0
B3.1.3	162	1	61	AI101 (1AI/2AO)	INTEGER	2	x1000
B3.1.4	162	1	62	AO101 (1AI/2AO)	INTEGER	2	x1000
B3.1.5	162	1	63	AO102 (1AI/2AO)	INTEGER	2	x1000
B3.2.1	162	1	244	AI101 Mode	BYTE	1	x0
B3.2.2	162	1	49	AI101 Signal Range	BYTE	1	x0
B3.2.3	162	1	50	AI101 Custom Min	INTEGER	2	x100
B3.2.4	162	1	51	AI101 Custom Max	INTEGER	2	x100
B3.2.5	162	1	52	AI101 Filter Time	INTEGER	2	x100
B3.2.6	162	1	53	AI101 Signal Invert	BYTE	1	x0
B3.2.7	162	1	54	AO101 Mode	BYTE	1	x0
B3.2.8	162	1	55	AO101 Function	BYTE	1	x0
B3.2.9	162	1	56	AO101 Minimum	BYTE	1	x0
B3.2.10	162	1	57	AO101 Filter Time	INTEGER	2	x100
B3.2.11	162	1	58	AO101 Scale	INTEGER	2	x0
B3.2.12	162	1	59	AO101 Inversion	BYTE	1	x0
B3.2.13	162	1	60	AO101 Offset	INTEGER	2	x100
B3.2.14	162	1	64	AO102 Mode	BYTE	1	x0
B3.2.15	162	1	65	AO102 Function	BYTE	1	x0
B3.2.16	162	1	66	AO102 Minimum	BYTE	1	x0
B3.2.17	162	1	67	AO102 Filter Time	INTEGER	2	x100
B3.2.18	162	1	68	AO102 Scale	INTEGER	2	x0
B3.2.19	162	1	69	AO102 Inversion	BYTE	1	x0
B3.2.20	162	1	70	AO102 Offset	INTEGER	2	x100
B4.1.1	162	1	26	Board Status	BYTE	1	x0
B4.1.2	162	1	29	Slot A: FW Version	INTEGER	4	x0
B4.1.3	162	1	38	RO101-103 Status	BYTE	1	x0
B4.2.1	162	1	39	RO101 Function	BYTE	1	x0
B4.2.2	162	1	40	RO102 Function	BYTE	1	x0
B4.2.3	162	1	41	RO103 Function	BYTE	1	x0
B5.1.1	162	1	26	Board Status	BYTE	1	x0
B5.1.2	162	1	29	Slot A: FW Version	INTEGER	4	x0
B5.1.3	162	1	42	PT100-100 Status	INTEGER	6	x0
B5.1.4	162	1	43	PT100-100 Temperature	INTEGER	6	x0
B5.2.1	162	1	44	PT100-100 Select	BYTE	1	x0
B5.2.2	162	1	45	PT100-100 WarnLevel	INTEGER	2	x10
B5.2.3	162	1	46	PT100-100 FaultLevel	INTEGER	2	x10
B6.1.1	162	1	26	Board Status	BYTE	1	x0
B6.1.2	162	1	29	Slot A: FW Version	INTEGER	4	x0
B6.1.3	162	1	47	DI101-103 Status (6DI-240V)	BYTE	1	x0
B6.1.4	162	1	48	DI104-106 Status (I6DI-240V)	BYTE	1	x0
B7.1.1	162	1	26	Board Status	BYTE	1	x0
B7.1.2	162	1	29	Slot A: FW Version	INTEGER	4	x0
B7.1.3	162	1	9	n-Encoder 1 speed	INTEGER	2	x0
B7.1.4	162	1	10	n-Encoder 2 speed	INTEGER	2	x0
B7.1.5	162	1	22	Encoder Power Supply	BYTE	1	x0
B7.2.1	162	1	11	Encoder 1 Pulse Count	INTEGER	2	x0
B7.2.2	162	1	12	Encoder 1 Rotation Reverse	BYTE	1	x0
B7.2.3	162	1	13	Encoder 2 Pulse Count	INTEGER	2	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
B7.2.4	162	1	14	Encoder 2 Rotation Reverse	BYTE	1	x0
B7.2.5	162	1	15	Encoder 1 Type	BYTE	1	x0
B7.2.6	162	1	16	Encoder 2 Type	BYTE	1	x0
B7.2.7	162	1	17	Encoder Output Select	BYTE	1	x0
B7.2.8	162	1	18	Encoder Output Divider	BYTE	1	x0
B7.2.9	162	1	23	Encode1 Speed filter Time	INTEGER	2	x0
B7.2.10	162	1	24	Encode2 Speed Filter Time	INTEGER	2	x0
B8.1.1	162	1	26	Board Status	BYTE	1	x0
B8.1.2	162	1	29	Slot A: FW Version	INTEGER	4	x0
B8.1.3	162	1	9	n-Encoder 1 speed	INTEGER	2	x0
B8.1.4	162	1	10	n-Encoder 2 speed	INTEGER	2	x0
B8.1.5	162	1	22	Encoder Power Supply	BYTE	1	x0
B8.2.1	162	1	11	Encoder 1 Pulse Count	INTEGER	2	x0
B8.2.2	162	1	12	Encoder 1 Rotation Reverse	BYTE	1	x0
B8.2.3	162	1	13	Encoder 2 Pulse Count	INTEGER	2	x0
B8.2.4	162	1	14	Encoder 2 Rotation Reverse	BYTE	1	x0
B8.2.5	162	1	15	Encoder 1 Type	BYTE	1	x0
B8.2.6	162	1	16	Encoder 2 Type	BYTE	1	x0
B8.2.7	162	1	23	Encode1 Speed filter Time	INTEGER	2	x0
B8.2.8	162	1	24	Encode2 Speed Filter Time	INTEGER	2	x0
B10.1.1	162	1	73	Board Status	BYTE	1	x0
B10.1.2	162	1	76	Slot B: FW Version	INTEGER	4	x0
B10.1.3	162	1	77	DI201-203 Status (3DI/3DO/1Th)	BYTE	1	x0
B10.1.4	162	1	78	DO201-203 Status (3DI/3DO/1Th)	BYTE	1	x0
B10.1.5	162	1	79	Thermistor201 Resistance	DOUBLE	4	x0
B10.1.6	162	1	80	Thermistor201 State	BYTE	1	x0
B10.2.1	162	1	81	DO201 Function	BYTE	1	x0
B10.2.2	162	1	82	DO202 Function	BYTE	1	x0
B10.2.3	162	1	83	DO203 Function	BYTE	1	x0
B10.2.4	162	1	84	Thermistor201 Mode	BYTE	1	x0
B11.1.1	162	1	73	Board Status	BYTE	1	x0
B11.1.2	162	1	76	Slot B: FW Version	INTEGER	4	x0
B11.1.3	162	1	85	AI201 (1AI/2AO)	INTEGER	2	x1000
B11.1.4	162	1	86	AO201 (1AI/2AO)	INTEGER	2	x1000
B11.1.5	162	1	117	AO202 (1AI/2AO)	INTEGER	2	x1000
B11.2.1	162	1	245	AI201 Mode	BYTE	1	x0
B11.2.2	162	1	97	AI201 Signal Range	BYTE	1	x0
B11.2.3	162	1	99	AI201 Custom Min	INTEGER	2	x100
B11.2.4	162	1	100	AI201 Custom Max	INTEGER	2	x100
B11.2.5	162	1	101	AI201 Filter Time	INTEGER	2	x100
B11.2.6	162	1	102	AI201 Signal Invert	BYTE	1	x0
B11.2.7	162	1	103	AO201 Mode	BYTE	1	x0
B11.2.8	162	1	104	AO201 Function	BYTE	1	x0
B11.2.9	162	1	105	AO201 Minimum	BYTE	1	x0
B11.2.10	162	1	87	AO201 Filter Time	INTEGER	2	x100
B11.2.11	162	1	88	AO201 Scale	INTEGER	2	x0
B11.2.12	162	1	89	AO201 Inversion	BYTE	1	x0
B11.2.13	162	1	90	AO201 Offset	INTEGER	2	x100
B11.2.14	162	1	91	AO202 Mode	BYTE	1	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
B11.2.15	162	1	92	AO202 Function	BYTE	1	x0
B11.2.16	162	1	93	AO202 Minimum	BYTE	1	x0
B11.2.17	162	1	94	AO202 Filter Time	INTEGER	2	x100
B11.2.18	162	1	95	AO202 Scale	INTEGER	2	x0
B11.2.19	162	1	96	AO202 Inversion	BYTE	1	x0
B11.2.20	162	1	98	AO202 Offset	INTEGER	2	x100
B12.1.1	162	1	73	Board Status	BYTE	1	x0
B12.1.2	162	1	76	Slot B: FW Version	INTEGER	4	x0
B12.1.3	162	1	106	RO201-203 Status	BYTE	1	x0
B12.2.1	162	1	107	RO201 Function	BYTE	1	x0
B12.2.2	162	1	108	RO202 Function	BYTE	1	x0
B12.2.3	162	1	109	RO203 Function	BYTE	1	x0
B13.1.1	162	1	73	Board Status	BYTE	1	x0
B13.1.2	162	1	76	Slot B: FW Version	INTEGER	4	x0
B13.1.3	162	1	110	PT100-200 State	INTEGER	6	x0
B13.1.4	162	1	111	PT100-200 Temperature	INTEGER	6	x0
B13.2.1	162	1	112	PT100-200 Select	BYTE	1	x0
B13.2.2	162	1	113	PT100-200 Warning Limit	INTEGER	2	x10
B13.2.3	162	1	114	PT100-200 Fault Limit	INTEGER	2	x10
B14.1.1	162	1	73	Board Status	BYTE	1	x0
B14.1.2	162	1	76	Slot B: FW Version	INTEGER	4	x0
B14.1.3	162	1	115	DI201-203 Status (6DI-240V)	BYTE	1	x0
B14.1.4	162	1	116	DI204-206 Status (I6DI-240V)	BYTE	1	x0
B16.1.1	162	1	120	Slot C: Board Status	BYTE	1	x0
B16.1.2	162	1	123	Slot C: FW Version	INTEGER	4	x0
B16.1.3	162	1	124	DI301-303 Status (3DI/3DO/1Th)	BYTE	1	x0
B16.1.4	162	1	125	DO301-303 Status (3DI/3DO/1Th)	BYTE	1	x0
B16.1.5	162	1	126	Thermistor301 Resistance	DOUBLE	4	x0
B16.1.6	162	1	127	Thermistor301 Status	BYTE	1	x0
B16.2.1	162	1	128	DO301 Function	BYTE	1	x0
B16.2.2	162	1	129	DO302 Function	BYTE	1	x0
B16.2.3	162	1	130	DO303 Function	BYTE	1	x0
B16.2.4	162	1	131	Thermistor301 Mode	BYTE	1	x0
B17.1.1	162	1	120	Slot C: Board Status	BYTE	1	x0
B17.1.2	162	1	123	Slot C: FW Version	INTEGER	4	x0
B17.1.3	162	1	132	AI301 (I1AI/2AO)	INTEGER	2	x1000
B17.1.4	162	1	133	AO301 (1AI/2AO)	INTEGER	2	x1000
B17.1.5	162	1	134	AO302 (1AI/2AO)	INTEGER	2	x1000
B17.2.1	162	1	135	AI301 Mode	BYTE	1	x0
B17.2.2	162	1	136	AI301 Signal Range	BYTE	1	x0
B17.2.3	162	1	137	AI301 Min	INTEGER	2	x100
B17.2.4	162	1	138	AI301 Max	INTEGER	2	x100
B17.2.5	162	1	139	AI301 t-Filter	INTEGER	2	x100
B17.2.6	162	1	140	AI301 Invert	BYTE	1	x0
B17.2.7	162	1	141	AO301 Mode	BYTE	1	x0
B17.2.8	162	1	142	AO301 Function	BYTE	1	x0
B17.2.9	162	1	143	AO301 Min	BYTE	1	x0
B17.2.10	162	1	144	AO301 t-Filter	INTEGER	2	x100
B17.2.11	162	1	145	AO301 Scale	INTEGER	2	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
B17.2.12	162	1	146	AO301 Invert	BYTE	1	x0
B17.2.13	162	1	147	AO301 Offset	INTEGER	2	x100
B17.2.14	162	1	148	AO302 Mode	BYTE	1	x0
B17.2.15	162	1	149	AO302 Function	BYTE	1	x0
B17.2.16	162	1	150	AO302 Min	BYTE	1	x0
B17.2.17	162	1	151	AO302 t-Filter	INTEGER	2	x100
B17.2.18	162	1	152	AO302 Scale	INTEGER	2	x0
B17.2.19	162	1	153	AO302 Invert	BYTE	1	x0
B17.2.20	162	1	154	AO302 Offset	INTEGER	2	x100
B18.1.1	162	1	120	Slot C: Board Status	BYTE	1	x0
B18.1.2	162	1	123	Slot C: FW Version	INTEGER	4	x0
B18.1.3	162	1	155	RO301-303 Status	BYTE	1	x0
B18.2.1	162	1	156	RO301 Function	BYTE	1	x0
B18.2.2	162	1	157	RO302 Function	BYTE	1	x0
B18.2.3	162	1	158	RO303 Function	BYTE	1	x0
B19.1.1	162	1	120	Slot C: Board Status	BYTE	1	x0
B19.1.2	162	1	123	Slot C: FW Version	INTEGER	4	x0
B19.1.3	162	1	159	PT100-300 Status	INTEGER	6	x0
B19.1.4	162	1	160	PT100-300 Temperature	INTEGER	6	x0
B19.2.1	162	1	161	PT100-300 Select	BYTE	1	x0
B19.2.2	162	1	162	PT100-300 WarnLevel	INTEGER	2	x10
B19.2.3	162	1	163	PT100-300 FaultLevel	INTEGER	2	x10
B20.1.1	162	1	120	Slot C: Board Status	BYTE	1	x0
B20.1.2	162	1	123	Slot C: FW Version	INTEGER	4	x0
B20.1.3	162	1	164	DI301-303 Status (6DI-240V)	BYTE	1	x0
B20.1.4	162	1	165	DI304-306 Status (I6DI-240V)	BYTE	1	x0
B22.1.1	162	1	168	Slot D: Board Status	BYTE	1	x0
B22.1.2	162	1	170	Slot D: FW Version	INTEGER	4	x0
B22.1.3	NA	NA	NA	DI401-403 Status (3DI/3DO/1Th)	BYTE	1	x0
B22.1.4	NA	NA	NA	DO401-403 Status (3DI/3DO/1Th)	BYTE	1	x0
B22.1.5	NA	NA	NA	Thermistor401 Resistance	DOUBLE	4	x0
B22.1.6	NA	NA	NA	Thermistor401 Status	BYTE	1	x0
B22.2.1	162	1	171	DO401 Function	BYTE	1	x0
B22.2.2	162	1	172	DO402 Function	BYTE	1	x0
B22.2.3	162	1	173	DO403 Function	BYTE	1	x0
B22.2.4	NA	NA	NA	Thermistor401 Mode	BYTE	1	x0
B23.1.1	162	1	168	Slot D: Board Status	BYTE	1	x0
B23.1.2	162	1	170	Slot D: FW Version	INTEGER	4	x0
B23.1.3	NA	NA	NA	AI401 (1AI/2AO)	INTEGER	2	x1000
B23.1.4	NA	NA	NA	AO401 (1AI/2AO)	INTEGER	2	x1000
B23.1.5	NA	NA	NA	AO402 (1AI/2AO)	INTEGER	2	x1000
B23.2.1	NA	NA	NA	AI401 Mode	BYTE	1	x0
B23.2.2	162	1	175	AI401 Signal Range	BYTE	1	x0
B23.2.3	162	1	176	AI401 Min	INTEGER	2	x100
B23.2.4	162	1	177	AI401 Max	INTEGER	2	x100
B23.2.5	NA	NA	NA	AI401 t-Filter	INTEGER	2	x100
B23.2.6	162	1	174	AI401 Invert	BYTE	1	x0
B23.2.7	NA	NA	NA	AO401 Mode	BYTE	1	x0
B23.2.8	162	1	178	AO401 Function	BYTE	1	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
B23.2.9	162	1	179	AO401 Min	BYTE	1	x0
B23.2.10	162	1	180	AO401 t-Filter	INTEGER	2	x100
B23.2.11	162	1	181	AO401 Scale	INTEGER	2	x0
B23.2.12	162	1	182	AO401 Invert	BYTE	1	x0
B23.2.13	162	1	183	AO401 Offset	INTEGER	2	x100
B23.2.14	NA	NA	NA	AO402 Mode	BYTE	1	x0
B23.2.15	162	1	184	AO402 Function	BYTE	1	x0
B23.2.16	162	1	185	AO402 Minimum	BYTE	1	x0
B23.2.17	162	1	186	AO402 t-Filter	INTEGER	2	x100
B23.2.18	162	1	187	AO402 Scale	INTEGER	2	x0
B23.2.19	162	1	188	AO402 Invert	BYTE	1	x0
B23.2.20	162	1	189	AO402 Offset	INTEGER	2	x100
B24.1.1	162	1	168	Slot D: Board Status	BYTE	1	x0
B24.1.2	162	1	170	Slot D: FW Version	INTEGER	4	x0
B24.1.3	NA	NA	NA	RO401-403 Status	BYTE	1	x0
B24.2.1	162	1	190	RO401 Function	BYTE	1	x0
B24.2.2	162	1	191	RO402 Function	BYTE	1	x0
B24.2.3	162	1	192	RO403 Function	BYTE	1	x0
B25.1.1	162	1	168	Slot D: Board Status	BYTE	1	x0
B25.1.2	162	1	170	Slot D: FW Version	INTEGER	4	x0
B25.1.3	NA	NA	NA	PT100-400 Status	INTEGER	6	x0
B25.1.4	NA	NA	NA	PT100-400 Temperature	INTEGER	6	x0
B25.2.1	NA	NA	NA	PT100-400 Select	BYTE	1	x0
B25.2.2	NA	NA	NA	PT100-400 WarnLevel	INTEGER	2	x10
B25.2.3	NA	NA	NA	PT100-400 FaultLevel	INTEGER	2	x10
B26.1.1	162	1	168	Slot D: Board Status	BYTE	1	x0
B26.1.2	162	1	170	Slot D: FW Version	INTEGER	4	x0
B26.1.3	NA	NA	NA	DI401-403 Status (6DI-240V)	BYTE	1	x0
B26.1.4	NA	NA	NA	DI404-406 Status (I6DI-240V)	BYTE	1	x0
B27.1.1.1	162	1	168	Slot D: Board Status	BYTE	1	x0
B27.1.1.2	162	1	170	Slot D: FW Version	INTEGER	4	x0
B27.1.1.3	NA	NA	NA	PN400 ProtocolStatus	BYTE	1	x0
B27.1.1.4	NA	NA	NA	PB400 Telegram	INTEGER	2	x0
B27.1.1.5	NA	NA	NA	PB400 MAC Address	BYTE	6	x0
B27.1.1.6	NA	NA	NA	PB400 Active IP Address	BYTE	4	x0
B27.1.1.7	NA	NA	NA	PB400 Active Subnet Mask	BYTE	4	x0
B27.1.1.8	NA	NA	NA	PB400 Active Default Gateway	BYTE	4	x0
B27.1.2.1	NA	NA	NA	PB400 COM Mode	BYTE	1	x0
B27.1.2.2	160	1	222	IP Address Mode	BYTE	1	x0
B27.1.2.3	160	1	223	Static IP Address	BYTE	4	x0
B27.1.2.4	160	1	224	Static Subnet Mask	BYTE	4	x0
B27.1.2.5	160	1	225	Static Default Gateway	BYTE	4	x0
B27.1.2.6	NA	NA	NA	Station Name		20	x0
B27.1.2.7	160	1	84	SlotD Fieldbus Fault Response	BYTE	1	x0
B27.2.1.1	NA	NA	NA	FaultCounter Profibus Fault Slot D	INTEGER	2	x0
B27.2.1.2	NA	NA	NA	PB400 Fault Situations Max	INTEGER	4	x0
B27.2.1.3	NA	NA	NA	PB400 PDP-ProfilNumber	INTEGER	2	x0
B27.2.1.4	NA	NA	NA	PB400 PDP-Controlword	INTEGER	2	x0
B27.2.1.5	NA	NA	NA	PB400 PDP-Statusword	INTEGER	2	x0

Table 17: Parameter list—parameters for the PowerXL DX1 EIP, continued

Menu item no.	EtherNet/IP class	EtherNet/IP instance	EtherNet/IP attribute	Parameter description	Data type	Length (in Bytes)	Display format
B27.2.1.6	NA	NA	NA	PDP-MaxBlockLength	INTEGER	2	x0
B27.2.1.7	NA	NA	NA	PDP-NoOfMultiparameter	BYTE	1	x0
B27.2.1.8	NA	NA	NA	PDP-MaxLatency	BYTE	1	x0
B27.2.1.9	NA	NA	NA	PDP-DO Manufacturer	INTEGER	2	x0
B27.2.1.10	NA	NA	NA	PDP-DO Device Type	INTEGER	2	x0
B27.2.1.11	NA	NA	NA	PDP-DO NoOfDOs	BYTE	1	x0
B27.2.1.12	NA	NA	NA	PDP-DO Subclass	BYTE	1	x0
B27.2.2.1	NA	NA	NA	PB400 Parameter Access	INTEGER	2	x0
B27.2.2.2	NA	NA	NA	PB400 Control Priority	INTEGER	2	x0
B27.2.2.3	NA	NA	NA	PB400 Fault Situation Counter	INTEGER	2	x0
B28.1.1	160	1	226	PB400 Active IP Address	BYTE	4	x0
B28.1.2	160	1	227	PB400 Active Subnet Mask	BYTE	4	x0
B28.1.3	160	1	228	PB400 Active Default Gateway	BYTE	4	x0
B28.1.4	160	1	230	PB400 MAC Address	BYTE	6	x0
B28.1.5	162	1	168	Slot D: Board Status	BYTE	1	x0
B28.1.6	161	1	90	Ethernet IP Protocol Status	BYTE	1	x0
B28.1.7	162	1	170	Slot D: FW Version	INTEGER	4	x0
B28.2.1	160	1	222	EIP CtrB IP Address Mode	BYTE	1	x0
B28.2.2	160	1	223	Static IP Address	BYTE	4	x0
B28.2.3	160	1	224	Static Subnet Mask	BYTE	4	x0
B28.2.4	160	1	225	Static Default Gateway	BYTE	4	x0
B28.2.5	162	1	249	EIP CtrB COM Timeout	INTEGER	2	x0
B28.2.6	160	1	84	SlotD Fieldbus Fault Response	BYTE	1	x0
O1	160	1	1	Output Frequency	INTEGER	2	x100
O2	161	1	171	Speed Reference	DOUBLE	4	x100
O3	4	129	3	Motor Speed	DOUBLE	4	x100
O4	160	1	3	Motor Current	INTEGER	2	x10
O5	4	129	3	Motor Torque	INTEGER	2	x10
O6	160	1	5	Motor Power	INTEGER	2	x10
O7	160	1	6	Motor Voltage	INTEGER	2	x10
O8	160	1	7	DC-link Voltage	INTEGER	2	x0
O9	160	1	8	Unit Temperature	INTEGER	2	x10
O10	160	1	9	Motor Temperature	INTEGER	2	x10
R11	160	1	241	Keypad Torque Ref	INTEGER	2	x10
R12	160	1	63	Keypad Reference	DOUBLE	4	x100
R13	NA	NA	NA	PID1 Keypad Set Point 1	DOUBLE	4	x100
R14	NA	NA	NA	PID1 Keypad Set Point 2	DOUBLE	4	x100

4.18 Further explanations

4.18.1 Error numbers

The error numbers are listed in the display with their associated display text.

- For a detailed list of errors, refer to the application manual of the respective variable frequency drive

4.19.1.1 DX1-NET-DualEIP

Table 18: Error numbers

Fault code	Fault name	Fault description	CIP code
1	Over Current	Over Current	0x2310
2	Over Voltage	Over Voltage	0x3210
3	Earth Fault	Earth Fault	0x2330
6	Ext Fault-AR	Emergency Stop	0xA001
7	Saturation Trip	Saturation Trip	0xA002
9	Under Voltage Fault	UnderVoltage	0x3220
10	Input Phase Superv	Input Phase Spv	0xA004
11	Output Phase Superv	Output Phase Spv	0xA005
12	Brake Chopper Superv	BrakeChopperSpv	0x7110
13	Drive Under Temp	Drive UnderTemp	0x4320
14	Drive OverTemp Fault	Drive OverTemp	0x4310
15	Motor Stalled	Motor Stalled	0x7121
16	Motor Overload	Motor OverTemp	0x4210
17	Motor Under Load	Motor UnderLoad	29 (Dec)
18	IP Address Conflict	IP conflict	0xA006
19	Power Board EEPROM Fault	Power board EEPROM Fault	0xA007
20	Control Board EEPROM fault	FRAM Fault	0xA008
21	S-Flash Fault	Serial Flash Fault	0xA009
22	Speed Deviation	Speed Deviation	0xA05C
23	STO Fault	STO Fault	0xA071
25	Watchdog Fault	MCU WatchDog Fault	0x6010
26	Start-up Prevent	Start-up Prevent	0xA00A
29	Thermistor Fault	Thermistor Fault	0x7300
32	Fan Cooling	Fan Cooling	0xA00B
37	Device Change	Device Change	0xA00C
38	Device Added	Device Added	0xA00D
40	Device Unknown	Device Unknown	0xA00F
41	IGBT Over Temp	IGBT Temperature	66 (Dec)
50	AI < 4mA (4to20mA)	AIN<4mA(4to20mA)	0xA011
51	External Fault	External Fault	0x9000
52	Keypad Comm Fault	Keypad Communication Fault	0xA012
54	Option Card Fault	OPT Card Fault	0xA013
56	PT100 Fault	PT100 Fault	0xA016
57	Motor ID Fault	Motor ID fault	0xA017
58	Current Measure Fault	Current Measure Fault	0x2100
60	Control Board Overtemp	Control Board OverTemp	0x4300
64	Replace Battery	Replace Battery	0xA019
65	Replace Fan	Replace Fan	0xA01A
66	Safe Torque Off	Safety Torque Off	0xA01B
67	Current Limit Control	current limit control	0x2200
68	Over Voltage Control	over voltage control	0x3310
69	Thermistor spi fault	Thermistor spi fault	0xA01C
70	DSP parameter fault	DSP parameter fault	0xA01D

Table 18: Error numbers, continued

Fault code	Fault name	Fault description	CIP code
82	Bypass Overload	BypassOverLoad	0xA025
83	FieldBus RTU Fault	FieldBus RTU Fault	0xA026
84	FieldBus TCP Fault	FieldBus TCP Fault	0xA027
87	FieldBus SlotA Fault	FieldBus SlotA Fault	0xA029
88	FieldBus SlotB Fault	FieldBus SlotB Fault	0xA02A
90	Drive Under Temp	Cold Weather Drive Under Temp	0x3221
92	External Fault 2	External Fault 2	0xA02D
93	External Fault 3	External Fault 3	0xA02E
94	Pump Lost	Pump Lost	0xA02F
95	Need Alternation	Need Alternation	0xA030
97	Pipe Fill Loss	Prime Loss	0xA031
98	PID1 Feedback AI Loss	PID1 Feedback AI Loss	0xA032
99	PID2 Feedback AI Loss	PID2 Feedback AI Loss	0xA033
103	Drive OverTemp Warning	Drive OverTemp Warning	0xA037
115	FieldBus EIP Idle Fault	FieldBus EIP Idle Fault	0xA049
118	Broken Pipe	Broken Pipe	0xA048
133	FieldBus Web UI Fault	FieldBus Web UI Fault	0xA050
134	Bumpless Transfer Fail	Bumpless Transfer Fail	0xA053
135	CP Interlock Fault Run	CP Interlock Fault Run	0xA054
136	CP Interlock Fault Stop	CP Interlock Fault Stop	0xA055
139	M/F Supervision Fault	M/F Supervision Fault	0xA058
140	M/F Limit Reached	M/F Limit Reached	0xA059
141	High Freq Pulse Input 1 fault	High Pulse DI1 fault	0xA05A
142	High Freq Pulse Input 2 fault	High Pulse DI2 fault	0xA05B
143	High Freq Pulse Output fault	High Pulse DO fault	0xA05D
144	Speed Error	Speed Error	0x7310
145	Fieldbus SlotC Fault	FieldBus SlotC Fault	0xA05E
146	Fieldbus SlotD Fault	FieldBus SlotD Fault	0xA05F
147	AI Fault	AI Fault	0xA060
148	ABZ Card Plug Slot Error	Card Plug Slot Error	0xA064
149	FS Card Plug Slot Error	Card Plug Slot Error	0xA065
150	Fiber Card Plug Slot Error	Card Plug Slot Error	0xA066
151	ProfiNet Card Plug Slot Error	Card Plug Slot Error	0xA067
152	EIP Card Plug Slot Error	Card Plug Slot Error	0xA068
153	MCU STO 5V Power Fault	STO Power Fault	0xA069
154	DSP STO 5V Power Fault	STO Power Fault	0xA070
156	M/F Configure Error	M/F Configure Error	0xA072
157	FC SPI Comm Fault	FC SPI Comm Fault	0xA073
158	FC Version MisMatch	FC Version MisMatch	0xA074
159	Encoder1 Signal Missing	Encoder1 Signal Missing	0xA075
160	Encoder2 Signal Missing	Encoder2 Signal Missing	0xA076
161	Encoder1 Inverse	Encoder1 Inverse	0xA077
162	Encoder2 Inverse	Encoder2 Inverse	0xA078
163	ABZ Card Vcc Error	ABZ Card Vcc Error	0xA079
164	ABZ Card Dcom Error	ABZ Card Dcom Error	0xA07A
165	Motor Direction Error	Motor Direction Error	0xA07B
167	M/F Comm Lost Fault	M/F Comm Lost Fault	0xA056
168	Follower Error	Follower Error	0xA057
200	FS CPU Diagnosis Error	FS CPU Diagnosis Error	0xA07D
201	FS RAM Diagnosis Error	FS RAM Diagnosis Error	0xA07E

Table 18: Error numbers, continued

Fault code	Fault name	Fault description	CIP code
202	FS FLASH Diagnosis Error	FS FLASH Diagnosis Error	0xA07F
203	FS BUS Diagnosis Error	FS BUS Diagnosis Error	0xA080
204	FS PC Diagnosis Error	FS PC Diagnosis Error	0xA081
205	FS Clock Diagnosis Error	FS Clock Diagnosis Error	0xA082
206	FS EEPROM Diagnosis Error	FS EEPROM Diagnosis Error	0xA083
207	FS SCI Diagnosis Error	FS SCI Diagnosis Error	0xA084
208	FS FSI Diagnosis Error	FS FSI Diagnosis Error	0xA085
209	FS MCU ID Diagnosis Error	FS SPI Diagnosis Error	0xA086
210	FS Watchdog Diagnosis Error	FS Watchdog Diagnosis Error	0xA087
211	FS Reset Circuit Diagnosis Error	FS Reset Circuit Diagnosis Error	0xA088
212	FS MCU1 Power Diagnosis Error1	FS MCU1 Power Diagnosis Error1	0xA089
213	FS MCU1 Power Diagnosis Error2	FS MCU1 Power Diagnosis Error2	0xA08A
214	FS MCU2 Power Diagnosis Error1	FS MCU2 Power Diagnosis Error1	0xA08B
215	FS MCU2 Power Diagnosis Error2	FS MCU2 Power Diagnosis Error2	0xA08C
216	FS SABZ 24V Diagnosis Error	FS SABZ 24V Diagnosis Error	0xA08D
217	FS SABZ 6V Diagnosis Error	FS SABZ 6V Diagnosis Error	0xA08E
218	FS SABZ 5V Diagnosis Error	FS SABZ 5V Diagnosis Error	0xA08F
219	FS SABZ Power Diagnosis Error	FS SABZ Power Diagnosis Error	0xA090
220	FS DI TP Diagnosis Error	FS DI TP Diagnosis Error	0xA091
221	FS DI Crossing Diagnosis Error	FS DI Crossing Diagnosis Error	0xA092
222	FS DO Diagnosis Error	FS DO TP Diagnosis Error	0xA093
223	FS DO Crossing Diagnosis Error	FS DO Crossing Diagnosis Error	0xA094
224	FS Speed Self Diagnosis Error	FS Speed Self Diagnosis Error	0xA095
225	FS Speed Crossing Diagnosis Error	FS Speed Crossing Diagnosis Error	0xA096
226	FS Direction Self Diagnosis Error	FS Direction Self Diagnosis Error	0xA097
227	FS Direction Crossing Diagnosis Error	FS Direction Crossing Diagnosis Error	0xA098
228	FS Position Diagnosis Error	FS Position Diagnosis Error	0xA099
229	FS Parameter Diagnosis Error	FS Parameter Diagnosis Error	0xA09A
230	SS1 Over Time	SS1 over time	0xA09B
231	SS1 Speed Exceed Tolerance	SS1 speed exceed tolerance	0xA09C
232	SBC Relay Feedback Error	SBC relay feedback error	0xA09D
233	SBC Relay Feedback Warning	SBC relay feedback warning	0xA09E
234	SLS Over Time	SLS over time	0xA09F
235	SLS Speed Exceed Tolerance	SLS speed exceed tolerance	0xA0A0
236	SLS Trip Limit	SLS trip limit	0xA0A1
237	SOS Position Exceed Tolerance	SOS Position exceed tolerance	0xA0A2
238	SS2 Over Time	SS2 over time	0xA0A3
239	SS2 Speed Exceed Tolerance	SS2 speed exceed tolerance	0xA0A4
240	SS2 Position Exceed Tolerance	SS2 position exceed tolerance	0xA0A5
241	SDI Over Time	SDI over time	0xA0A6
242	SDI Speed Exceed Tolerance	SDI speed exceed tolerance	0xA0A7
243	SDI Position Exceed Tolerance	SDI position exceed tolerance	0xA0A8
244	SLA Acceleration Exceed Tolerance	SLA Acceleration exceed tolerance	0xA0A9
245	SSR Speed Exceed Tolerance	SSR speed exceed tolerance	0xA0AA
246	FS MCU ID Diagnosis Error	FS MCU ID Diagnosis Error	0xA0AB
247	SABZ Tick Diagnosis Error	ABZ tick diagnosis error	0xA0AC
248	Encoder Line Number Fault	Encoder Line Number Fault	0xA0AD
249	Safety Card Configuration Error	Safety Card Configuration Error	0xA0AE
250	Safety Card Over Temp	Safety Card Over Temperature	0xA0AF

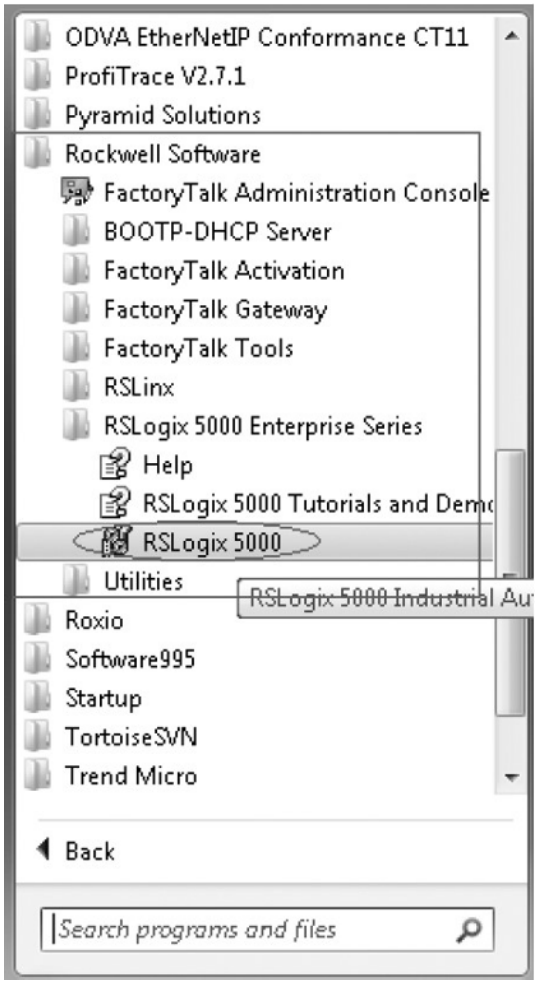
5 PLC programming

5.1 RSLogix 5000

When using a PLC as an EIP master, you must first configure a compatible EtherNet/IP scanner, and then map ladder logic variables to the scanner. The following example is for an RSLogix5000 with a CompactLogix-1769-L23E-QB1 PLC controller.

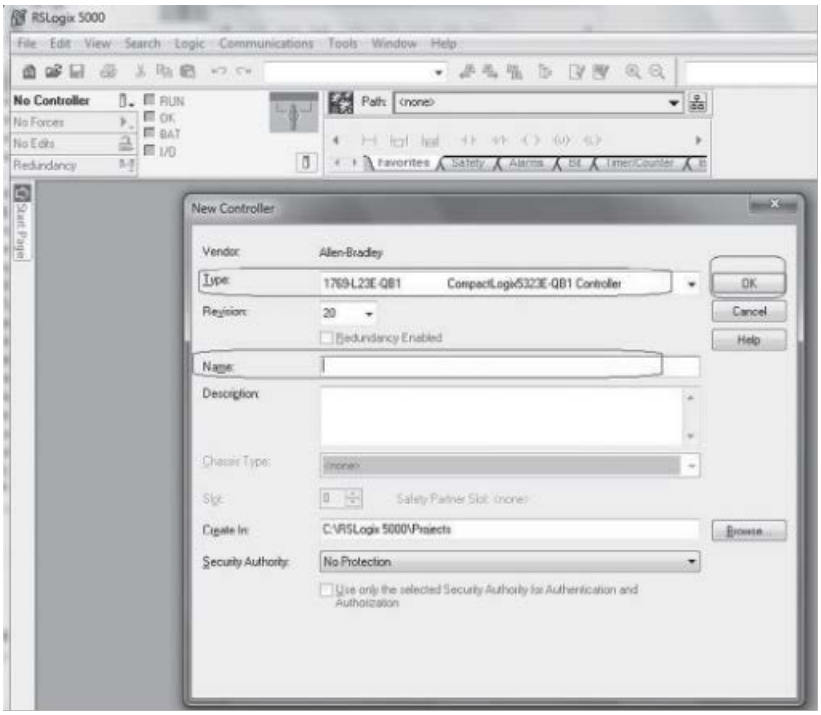
Note: Some PLCs do not support polled messaging for EtherNet/IP. For example, the SLC500 only supports explicit messaging.

Select Windows → Start → All Programs. Open RSLogix 5000.



From the Tools drop-down menu, select EDS Hardware Installation Tool to install the DXX-NET-EIP PowerXL VFD EIP Comm. Card's EtherNet/IP EDS file. This file can be downloaded from the Eaton website.

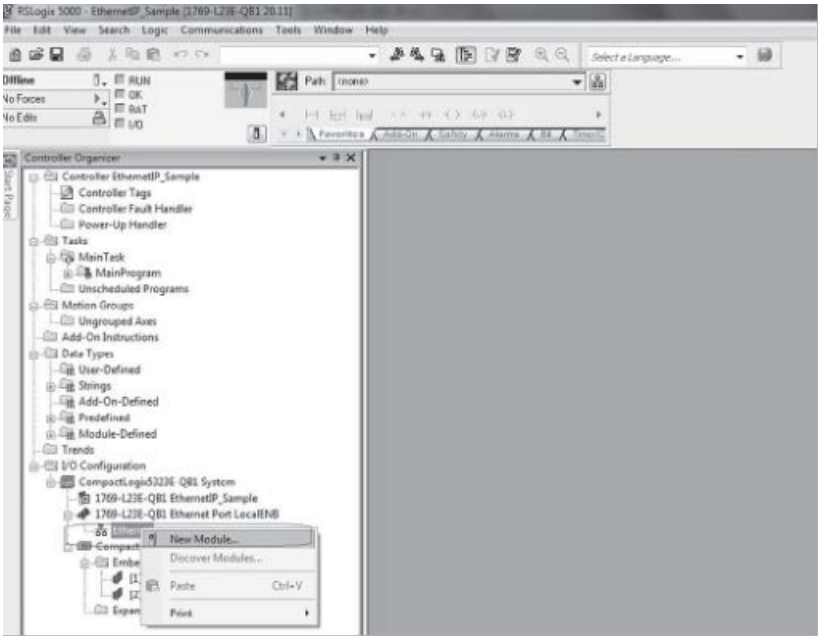
Select "New" from "File" menu. A new controller window will pop up. Select the controller and assign a unique name.



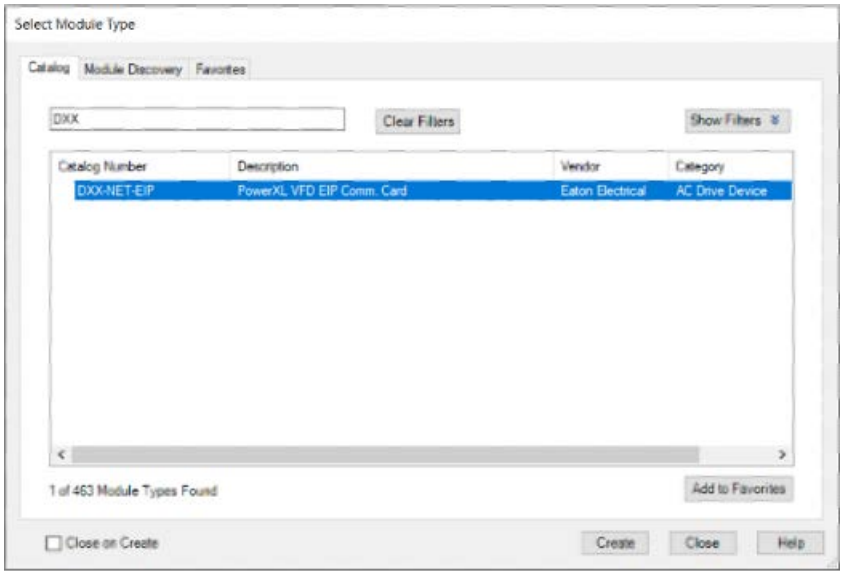
Press OK.

Right-click on Ethernet. Select "New Module".

Note: PC on which RSLogix (master) is running and DXX-NET-EIP PowerXL VFD EIP Comm. Card (slave) should be connected in same network.

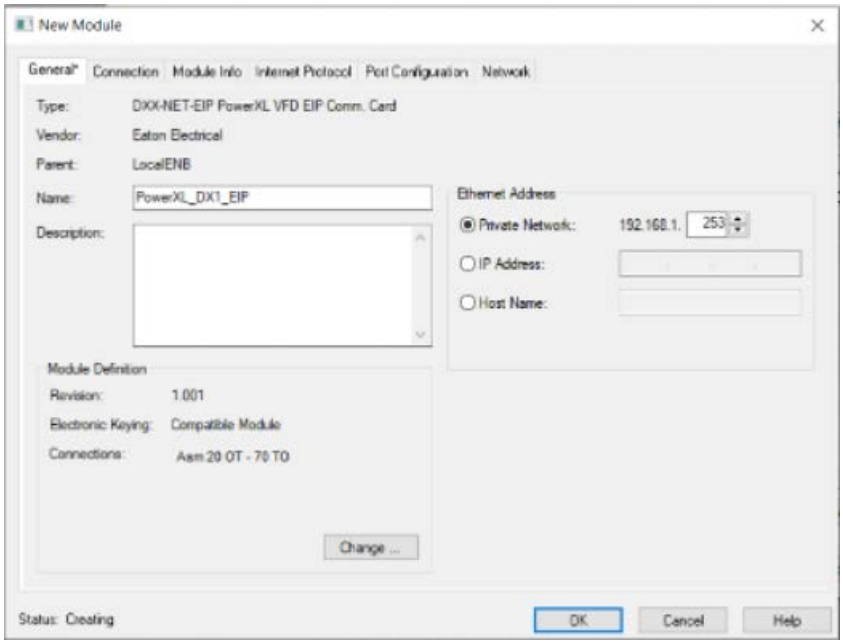


"Select Module Type" window will pop up. Select "DXX-NET-EIP" (use filter to search DXX from catalog).

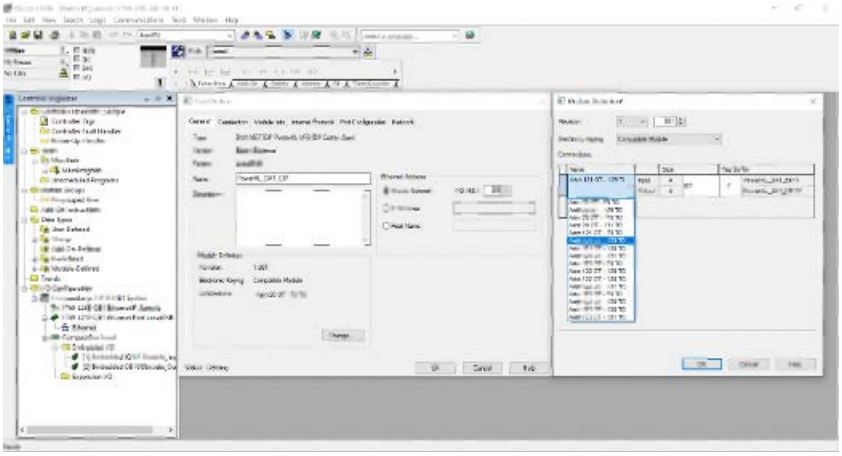


After selecting "DXX-NET-EIP", "New Module" window will pop up (as shown below). Fill in a unique name and appropriate IP address for device. Press OK. The device will get added under "Ethernet" module.

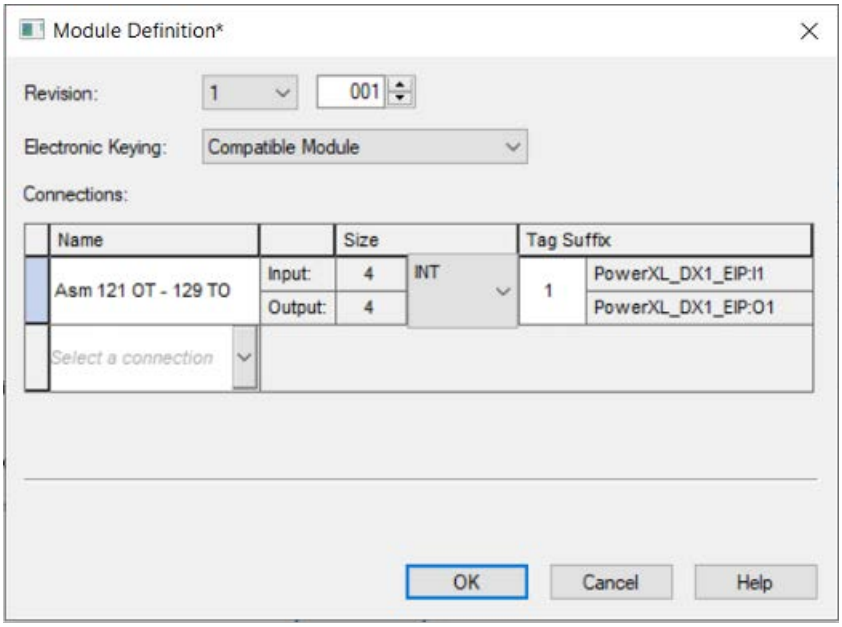
Note: You must change the connection from provided default option by using "Change" button available on "New Module" window. This can also be done after adding the device under Ethernet by double-clicking on it.



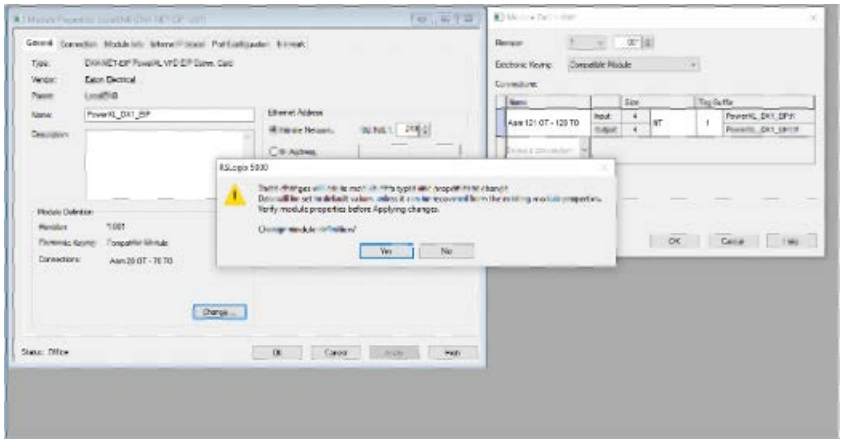
Choose the required I/O connection from the provided list and select the data type. After selecting desired IO assembly instance connection, information related to it will appear.



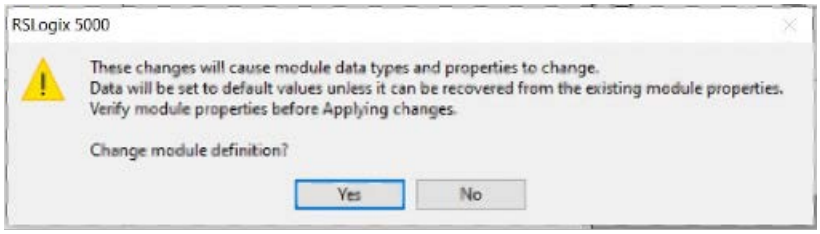
After selecting the IO connection, click "OK." For this example, I/O connection ASM121 OT – 129 TO will be used. The module definition window will then look as follows.



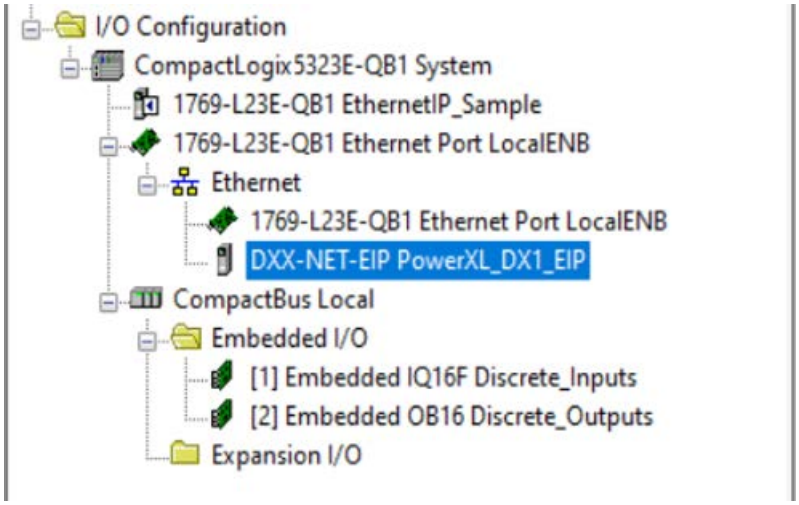
After pressing "OK", the following warning will pop up. Press "Yes."



Warning snapshot:

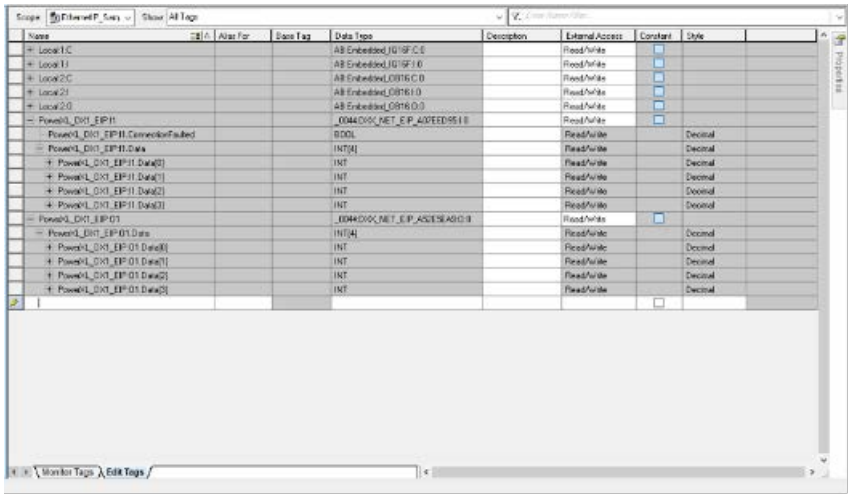


Then select "OK" on the New Module window and the DXX-NET-EIP card will be added to the EtherNet/IP Network on the left, in this case under the CompactLogix EtherNet/IP master port as shown.



Close the Select Module Type window or add more devices to the network.

Select the controller tags to view the input and output tags for the drive.

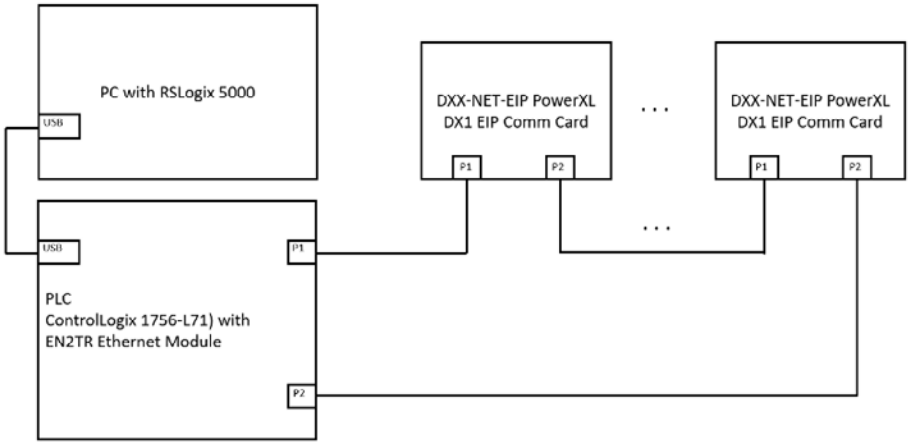


6 DLR Topology for DXX-NET-EIP PowerXL VFD EIP Comm. Card

This example shows how to prepare an Allen-Bradley® ControlLogix™ PLC (1756-L71) with an EtherNet/IP Module (1756-EN2TR) for DLR topology with DXX-NET-EIP PowerXL VFD EIP Comm. Card. After installing the devices on the DLR network, at least one supervisor node must be configured. Configuration can be done by using the RSLogix 5000® or RSLinx® Classic Lite software.

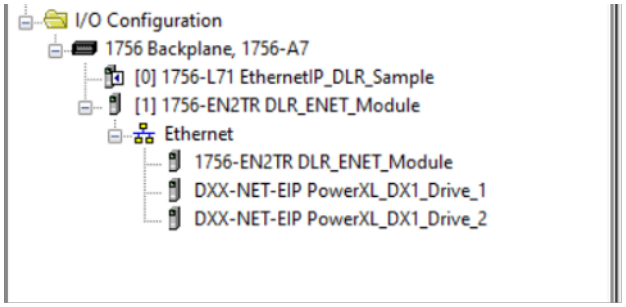
6.1 Setup using RSLogix 5000

1. Open the RSLogix 5000 software. Test setup uses an Allen-Bradley PLC 1756-L71 connected in a ring topology with two DXX-NET-EIP Comm. Cards. The topology used in the example is shown below. More devices can be added, but the recommended maximum number of nodes on a single DLR network is 50.

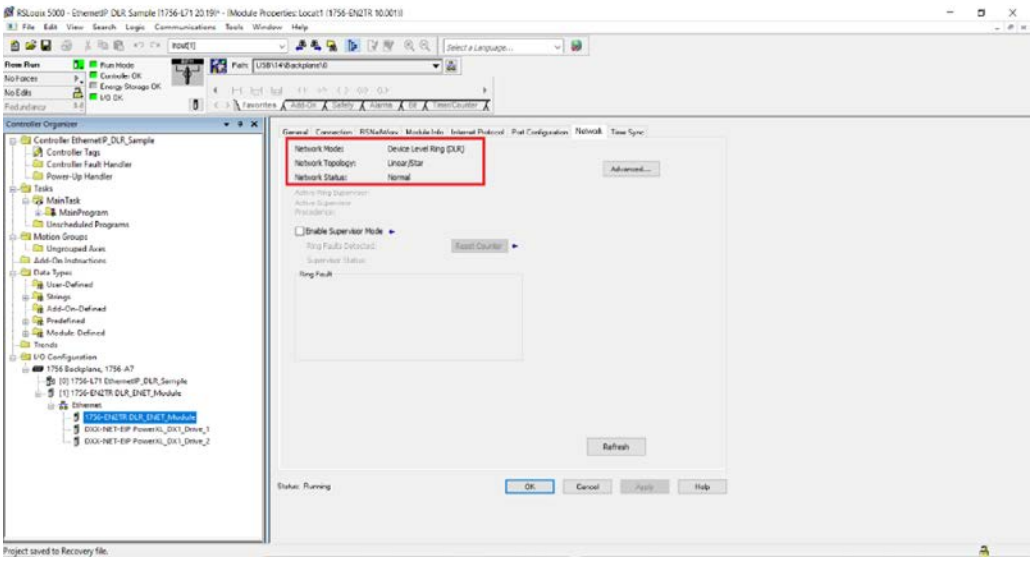


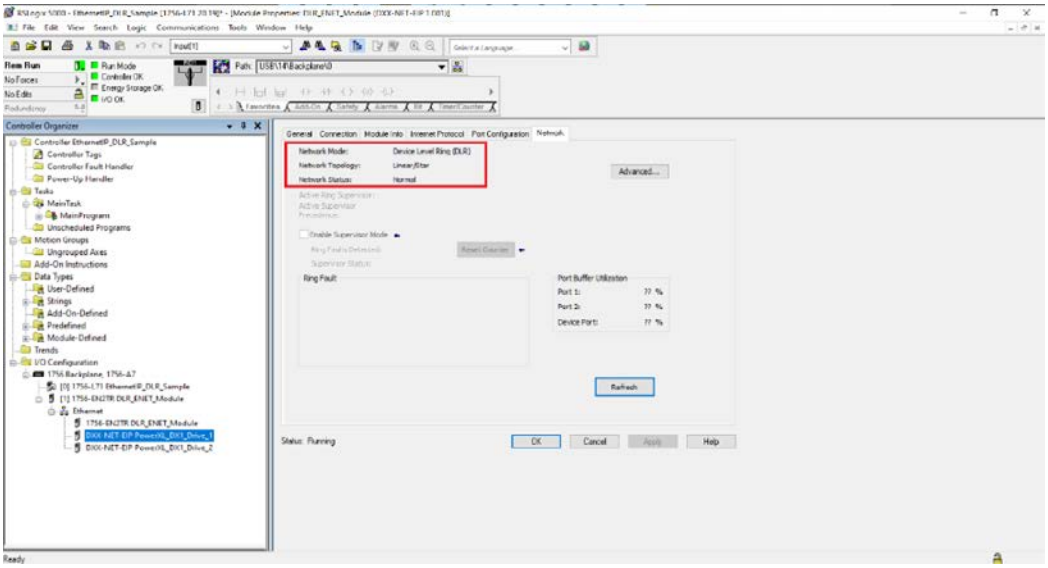
Note: It is assumed that the PLC configuration was already established in the RSLogix 5000 project, and the EDS file(s) are installed and at least two DXX-NET-EIP modules are added to the project.

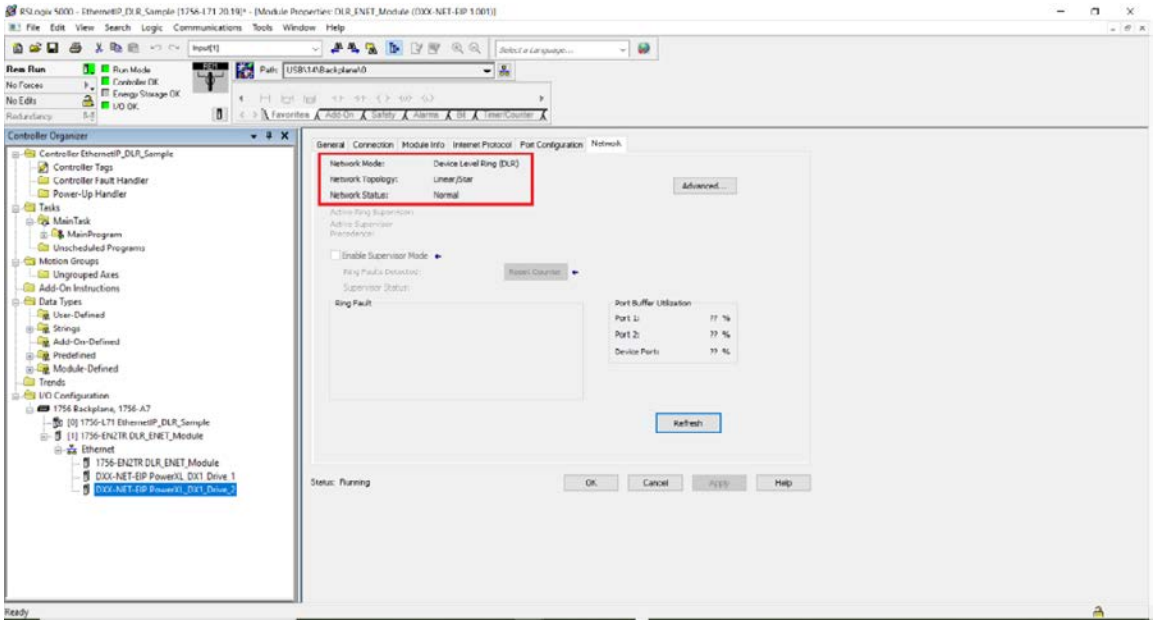
For more information on adding modules to a project and programming, see the section **PLC Programming** in manual.



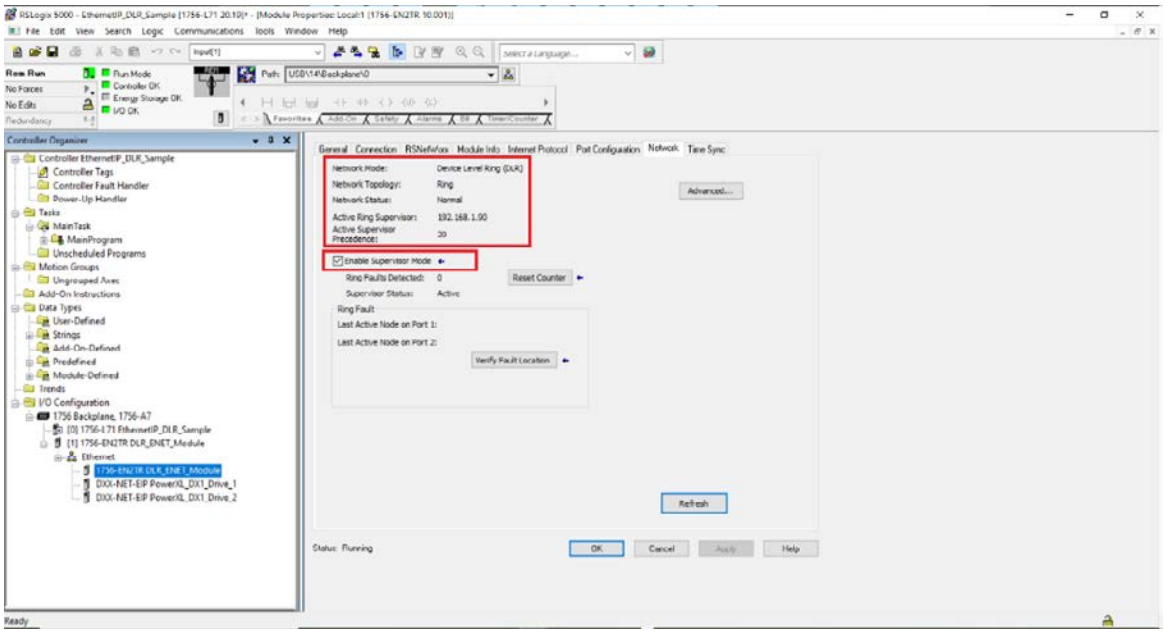
2. Download the project to the PLC and go online.
3. Open the **Network** tab of each device connected in the network. It will show **Network Topology** as **Linear** if there are no ring supervisors enabled in the network and **Network Status** will show **Normal** if there are no errors in the network connection.



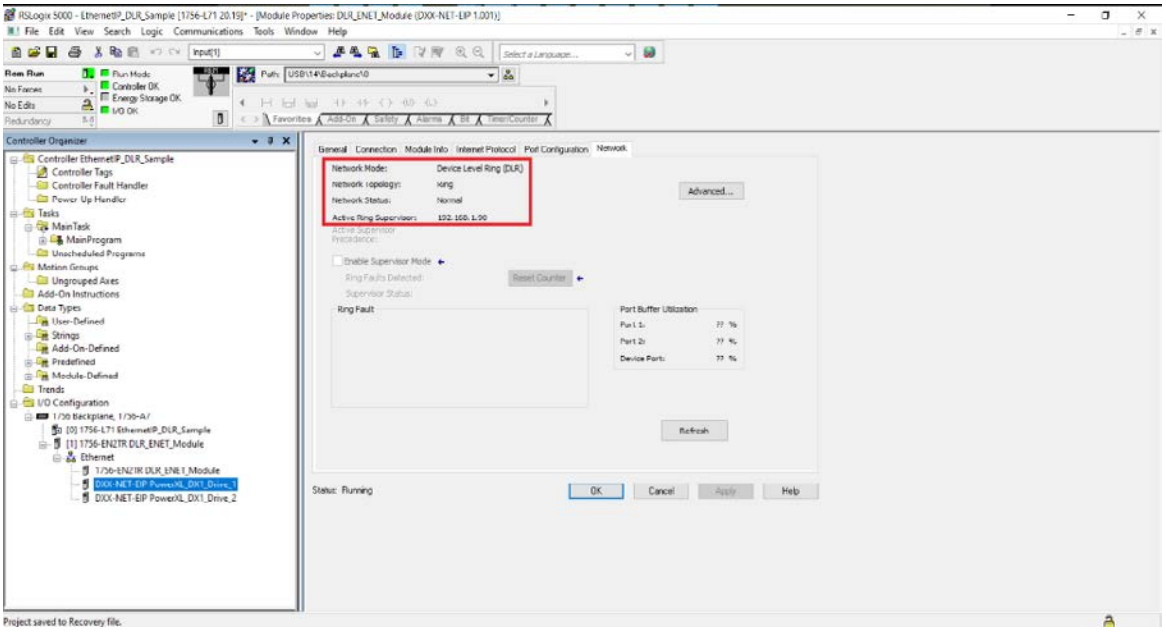


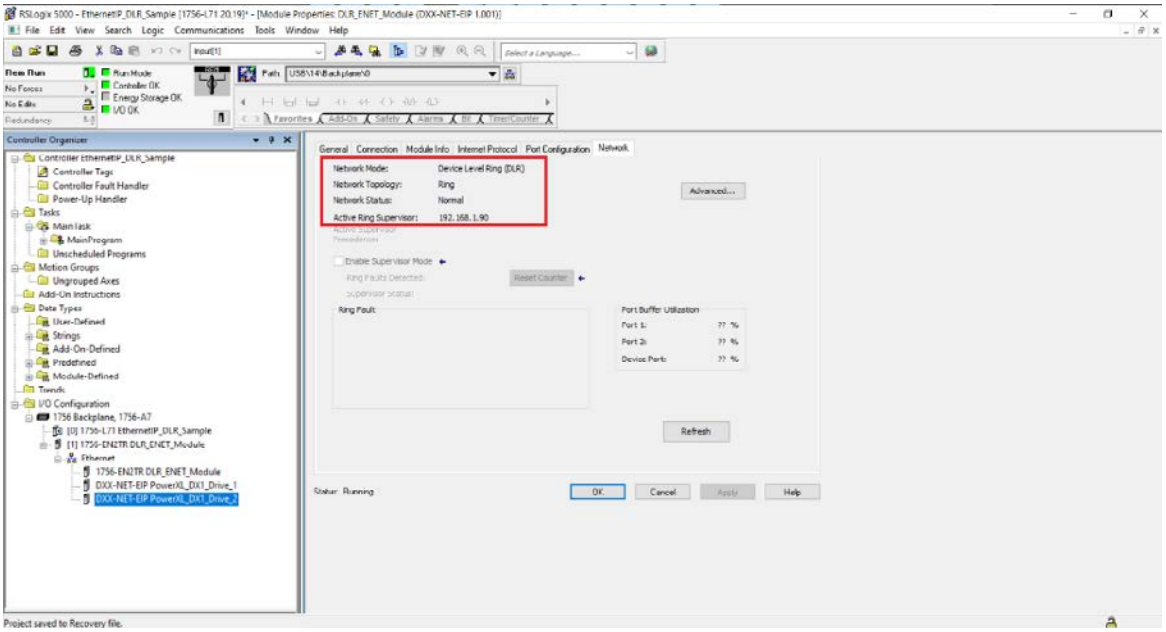


4. To start the communication in DLR topology, check the **Enable Supervisor Mode** option of the supervisor capable device. Upon enabling the supervisor mode, the **Network Topology** will change to **Ring** and **Network Status** will show **Normal** if there are no errors in the network connection. The **Advanced** button on window can be used to configure necessary DLR-related parameters like precedence, beacon interval, etc. (Note: If there are multiple supervisor devices on the network and Supervisor Mode is enabled for multiple devices, the device with highest value of precedence will act as the ring supervisor and the rest as backup supervisors.)

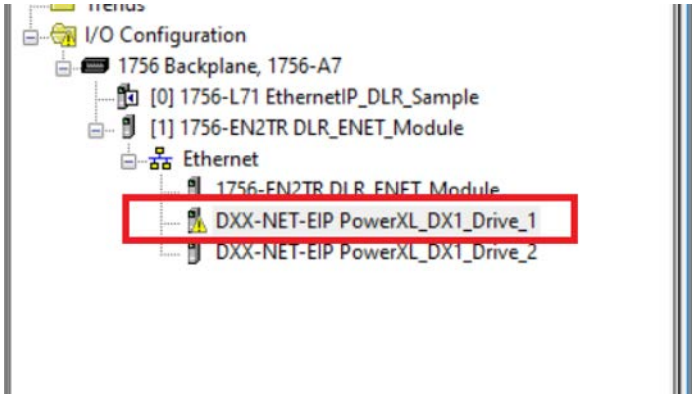


6 DLR Topology for DXX-NET-EIP PowerXL VFD EIP Comm. Card

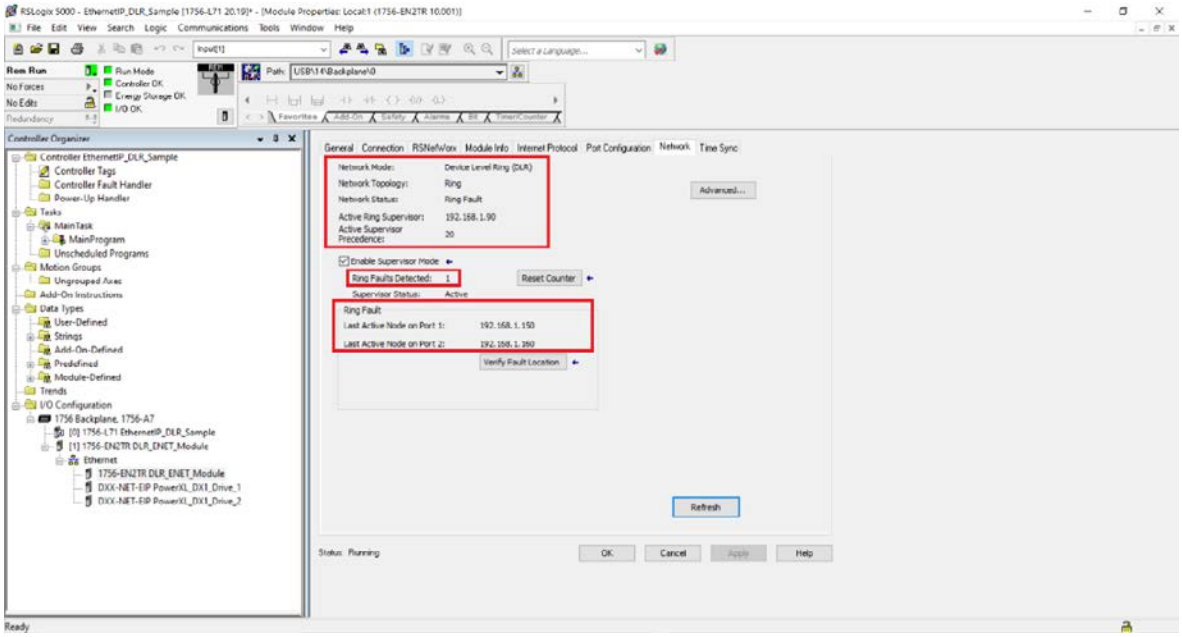




5. Make sure that none of the DXX-NET-EIP cards are faulted and that there is no warning symbol on the I/O Configuration window.

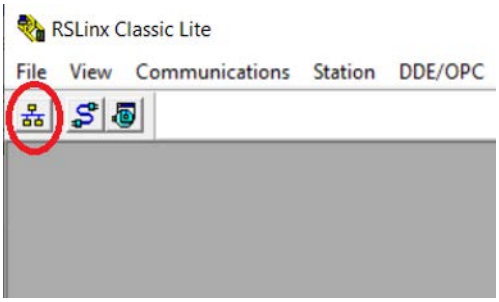


6. In case of Ring Fault, the status can be monitored on the Ring Supervisor/Ring Node module window. Ring supervisor displays information related to count of detected ring faults, last active node on each of its ports, etc.

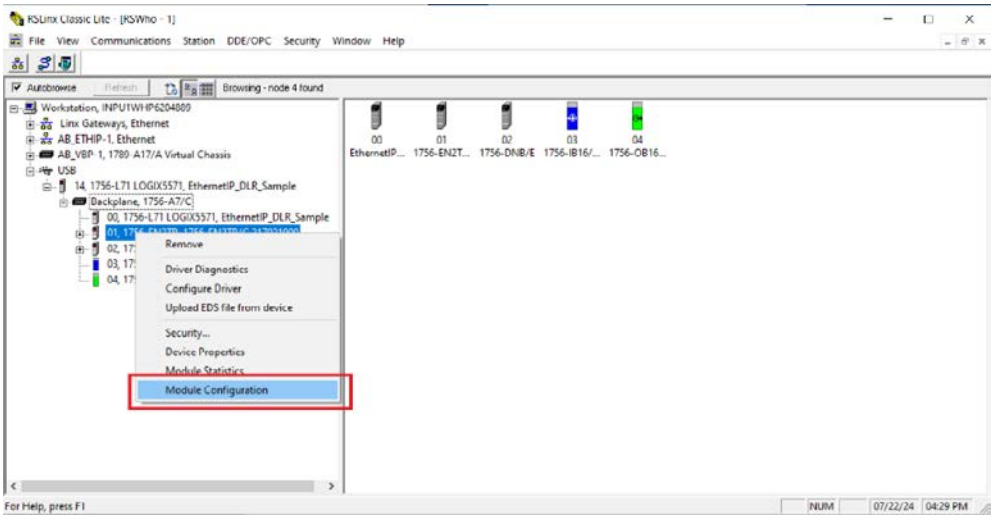


6.2 Setup using RSLinx Classic

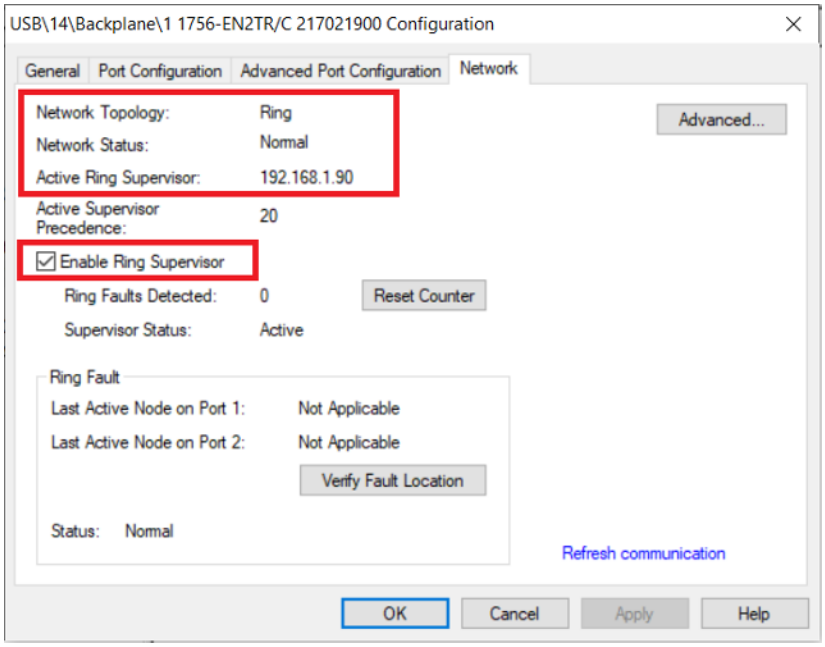
1. Open the RSLinx Classic software.
2. Browse to the DLR network.



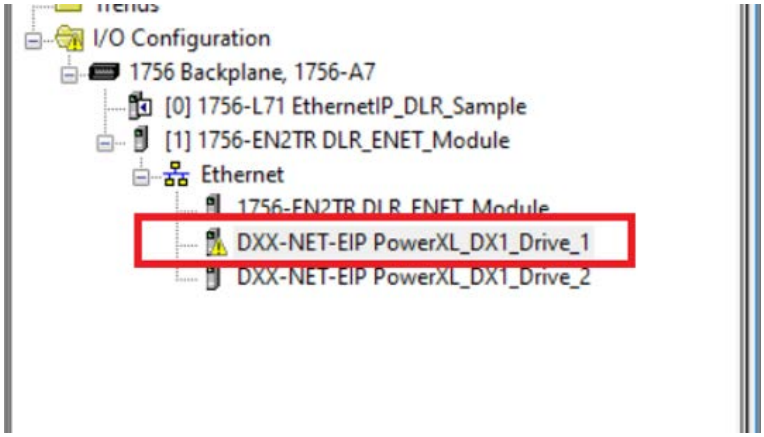
3. Open the **Module Configuration** by right-clicking on the ring supervisor in the list.



4. On the **Network** tab, select **Enable Ring Supervisor** to enable DLR messages in the ring.



5. Click **Advanced** to configure DLR parameters, such as Beacon Interval and Beacon Timeout.
6. Go back to RSLogix 5000 software and make sure that none of the DXX-NET-EIP modules are faulted and that there are no warning symbols displayed.



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