PowerXL PC Tools 101

Powering Business Worldwide

Agenda

- Power Xpert InControl
  - Overview
  - Connecting
  - Parameter Editing

- Power Xpert InControl Firmware Upgrade Tool
  - Overview
  - Configuring
  - Loading Processors

Part 1: PowerXpert *in*Control Overview

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Power Xpert *in*Control

An Eaton developed FDT/DTM device configuration and control tool assisting in streamlining network commissioning over fieldbus communication systems.

Customer Value:

- Standardized Configuration interface
- Remote parameter download and upload abilities
- Monitoring and data logging capabilities
- Device parameter backup files available

Compatible Products:

- PowerXL DG1 Drives
- C445 Overload Relay
- Planned future intergration of other Eaton product platforms

Competitive Products:

- Industry standard software allowing integration of non-Eaton devices

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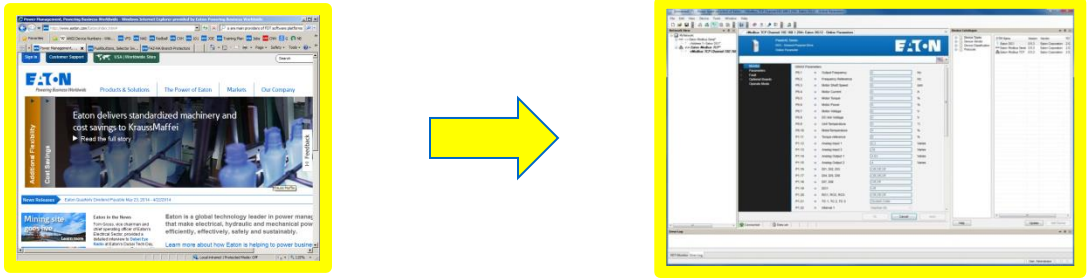
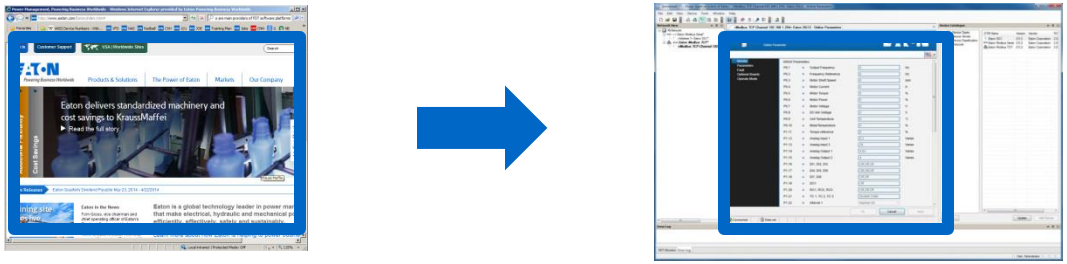
FDT & DTM Software Concept

- FDT program can be related to Internet Explorer which is the underlying program which opens / interacts with different web pages



- DTM programs can be related to individual web pages which can load multiple pages from different organizations in Internet Explorer



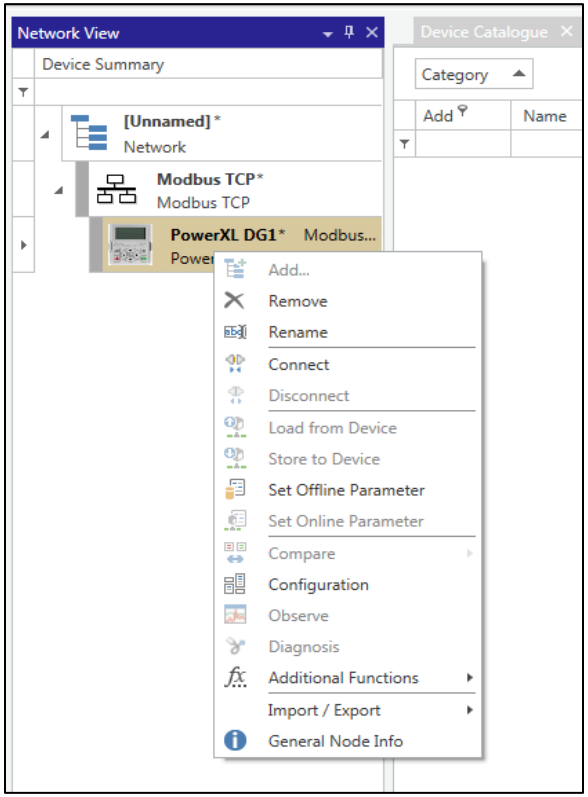
Software Framework

- Underlying software based on industry standard coding requirements called a field device tool (FDT) framework
- Base generic framework provided and maintained by FDT Group (www.fdtgroup.org)
- Provides common software interface for multiple products and over a variety of communication protocols

Software Structure

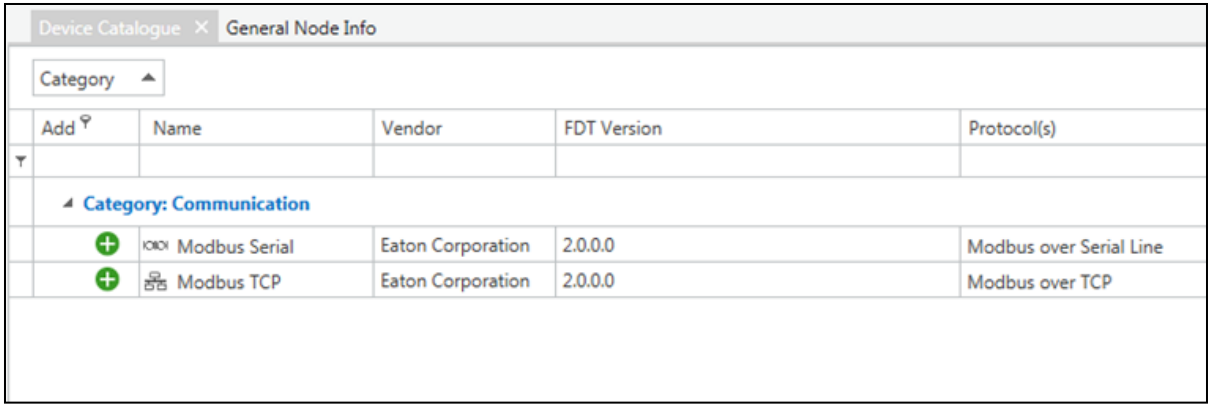
- Three main navigation and configuration sections of software
  - ***Network View*** – displays status of devices with quick access to configuration interfaces
  - ***DTM Interface Windows*** – device-specific information including parameterization, monitoring, and control screens
  - ***Device Catalog*** – library of device software available for loading onto the network

Network View



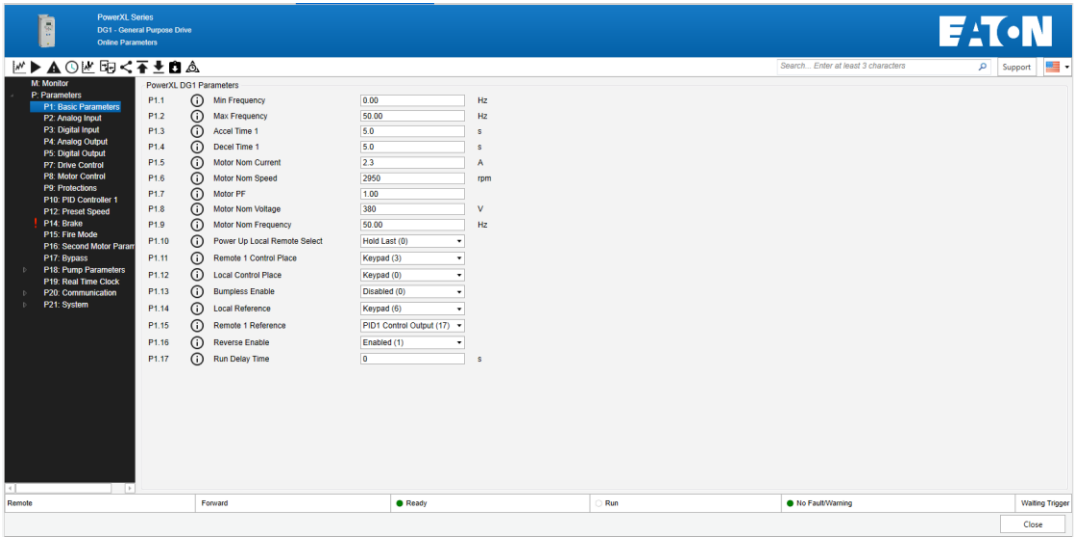
- Provides visual structure of network hierarchy
- Quick access to device configuration, integration, and advanced functions
- Device status color-coded to allow quick network status
  - ***Online*** **/** ***offline*** **/** ***timed-out***
  - Status determines available configuration & control abilities

Device Catalog



- Used to add devices to new or existing network
- Displays all DTMs loaded on host computer
- 1-Click catalog updater simplifies updating process of DTM programs

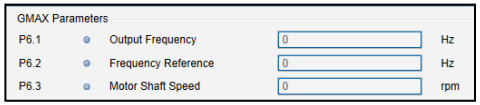
DTM Configuration Interface



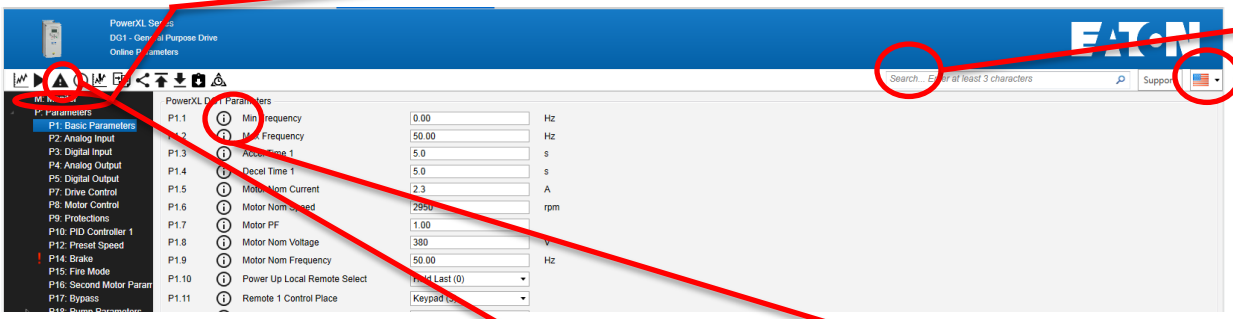
- Monitor, parameterize, or control networked devices
- Multiple interfaces / devices can be opened simultaneously
- Device network and operational status displayed on window status bars
- Common layout / structure across device manufactures based on FDT Standards

Standard Functionality

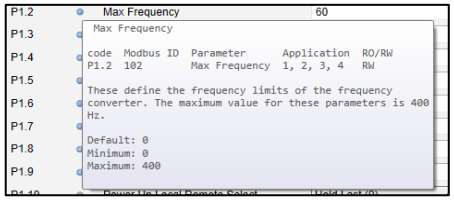
Provides Live Monitor Mode



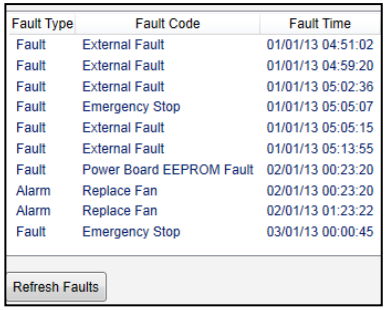
Search



Supports Multiple Languages



Provides Detailed Parameter Descriptions



Provides Detailed Fault History

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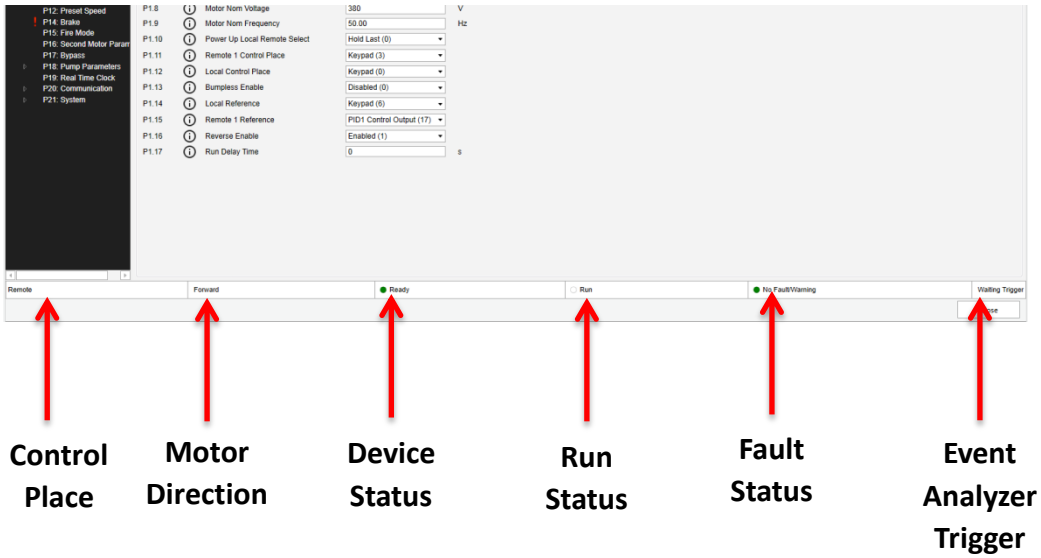
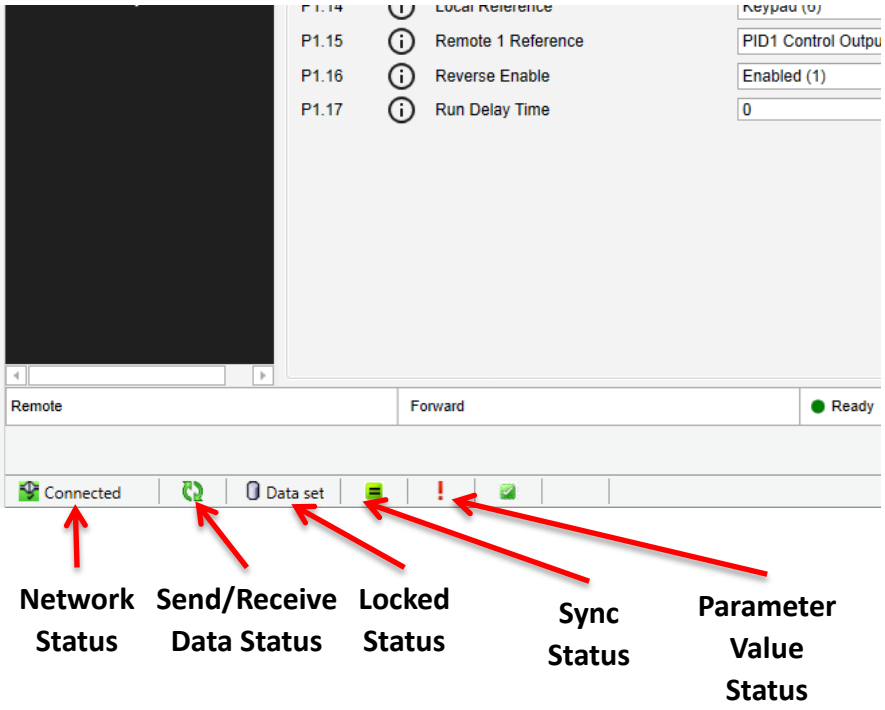
Device Status Bar



- Control Place:
  - Local or Remote
  - Device control location
  - Can configure parameters in either mode
- Device Status:
  - Ready / Not Ready
  - Indicates if device is ready without faults
- Device Run Status:
  - Run / Run (Stop)
  - Indicates state of device
- Fault / Warning Status:
  - Fault / Warning/No Fault
  - Indicates if fault or warning is active

Network Status Bar



- Device Network Status
  - Indicates devices connection status to software
  - Disturbed – Communication timeout has occurred
- Locked / Unlocked Data Set
  - Indicates if parameters can be edited and saved to device
- Sync Status
  - Data set synced with device status
- Parameter Value Status
  - Edited parameter
  - Device time out
  - Value out of Range

Part 2: Device Connection

PowerXL DG1

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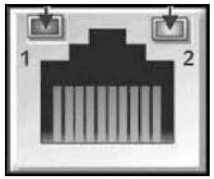
RJ-45 Ethernet Connection (1 of 3)

- Supports fieldbus configuration and control
- Does ***NOT*** support firmware upgrade tool
- Communication protocols supported:
  - Ethernet/IP
  - Modbus TCP
- Shielded CAT-5E or higher required
- Supports 10/100 Mb speeds in both full / half duplex

Ethernet Port LED Indications

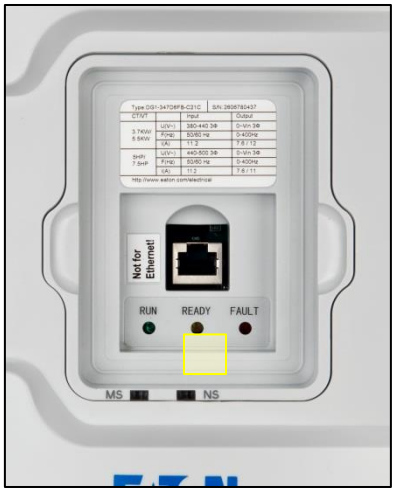


Ethernet LED

1. Ethernet Link Status
2. Ethernet Link Speed

LED	Meaning
Ethernet link status	Flashes with Ethernet message activity.
Ethernet link speed	Displays the link speed. Yellow LED on the Ethernet Jack is ON when link speed is 100 mbps Yellow LED on the Ethernet Jack is OFF when link speed is 10 mbps

USB to RJ45 (RS485) Connection (2 of 3)



- Supports full fieldbus configuration and control activated
- Supports firmware upgrade tool
- Communication protocols:
  - Modbus RTU
- Data transmission through pins 1 and 2
- Removes need to uninstall drive cover
- Can use with remote keypad mounts
- Catalog Number: DXG-CBL-PCCABLE

Port settings

Baud Rate - 38.4k*

Parity – Even*

Stop Bits – 1*

Data Bits – 8*

*Hard coded

USB to RS-485 Connection (3 of 3)

Port settings

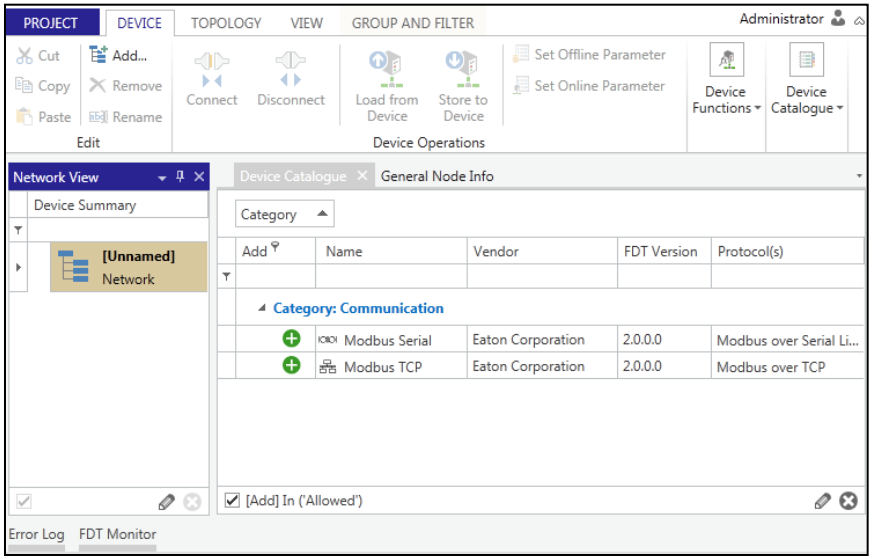
- Baud Rate – 19.2k*
- Parity – Even*
- Stop Bits – 1*
- Data Bits – 8*
- *can be changed on keypad

- Supports fieldbus configuration and control
- Supports firmware upgrade tool
- Communication protocols supported:
  - Modbus RTU
- Connected through control board terminals A (25) and B (26)
- When networking multiple drives, a built-in resistor for network termination is located between expansion card slots

Step 1: Open PowerXpert *in*Control

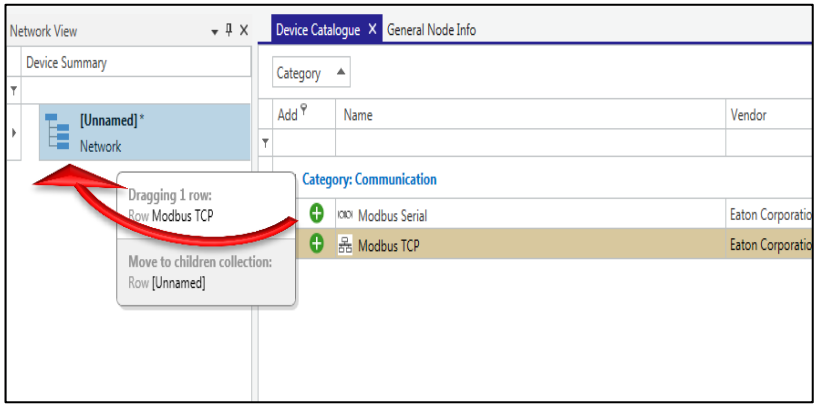
1. To begin setting up a device network, open PowerXpert *in*Control located in Start Menu
   a. Under “EATON”
   b. Executable through desktop shortcut 

   c. Blank network will appear

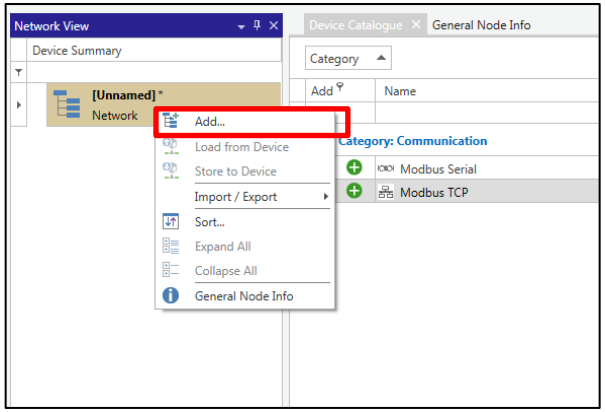


Step 2: Initial Network Setup

2. Communication protocol must be added to network first.
   Add Communications protocol DTM by either
   a. Click-and-drag DTM from device catalog to unnamed network node
   b. Click on Network, then symbol next to desired protocol
   c. Right click on Network and select Add, then select desired protocol

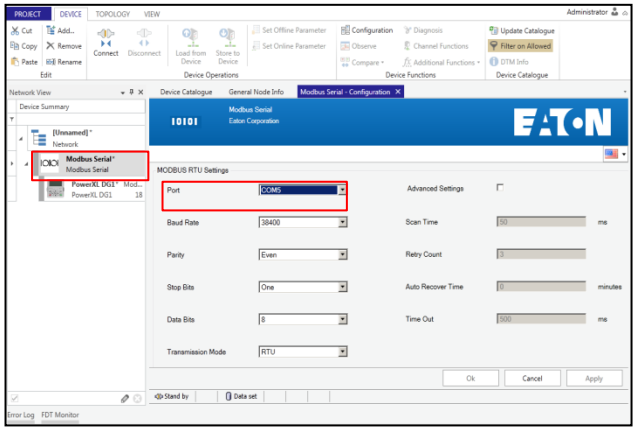


or

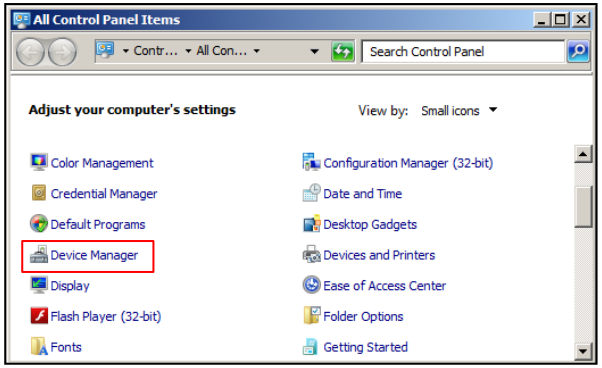


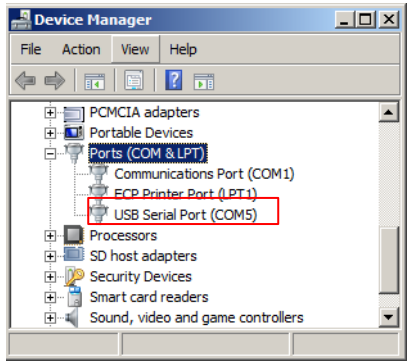
Step 2.2: PC USB Connection

3. Under “Network View”, double-click the “Modbus Serial” DTM. The tool will open a window to set Connection device settings. Select the USB communication port you are connected to the drive through. Then select apply.



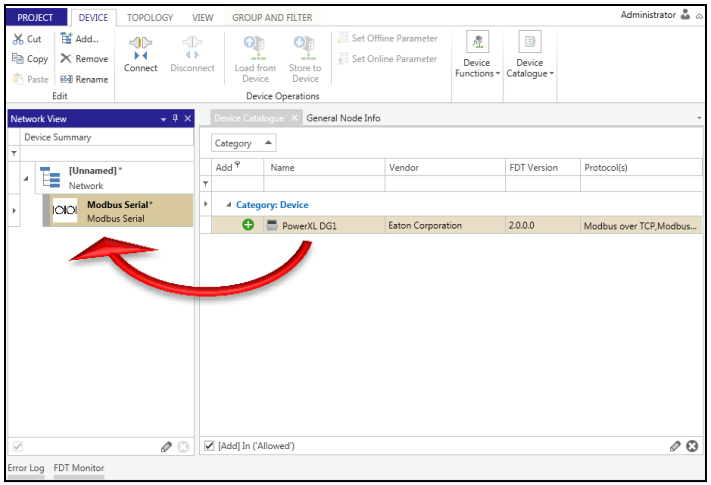
Note: If port is unknown, go to Control Panel, then Device Manager, then Ports to identify.





Step 3: Initial Network Setup

3. Select communication protocol node under Network View
4. Add PowerXL DG1 to comm. node (same as previous)



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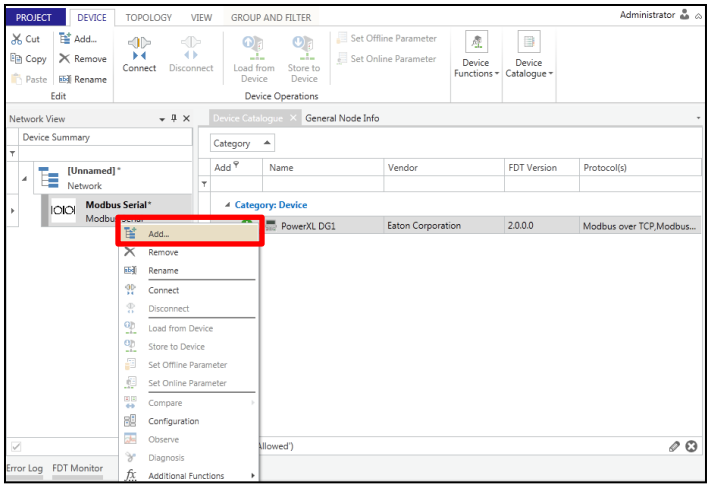
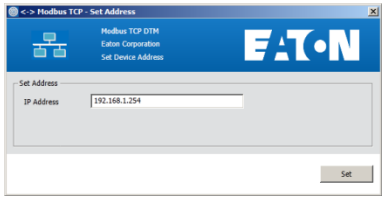
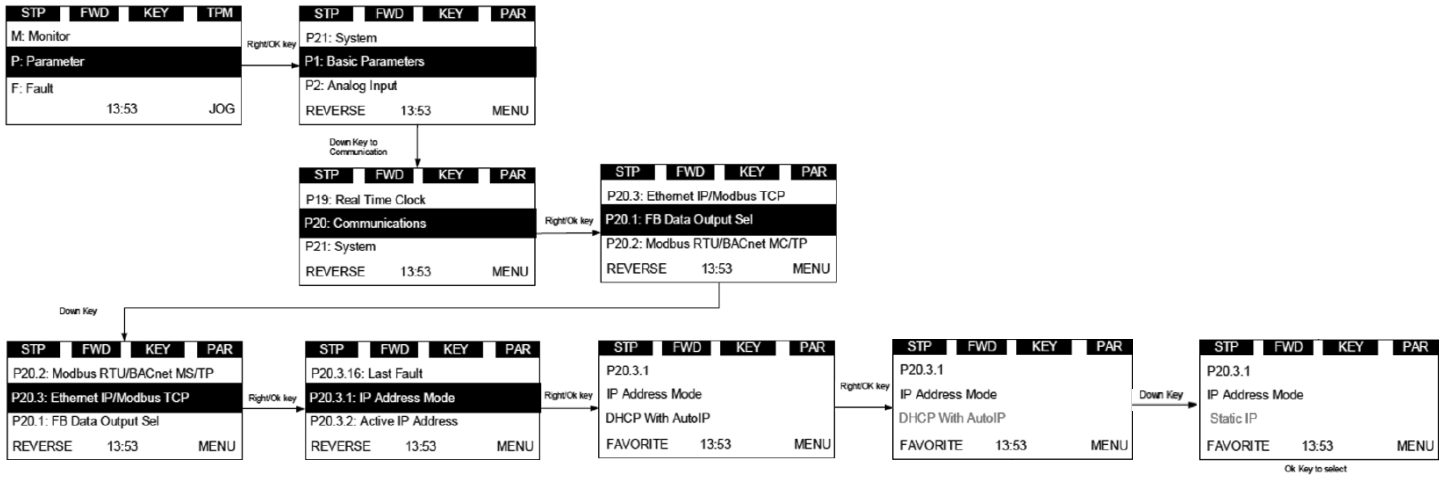


Step 3.1: Modbus TCP/Ethernet IP

1. Device address will auto appear when added DG1 DTM
   Set the IP address for the drive
   (Default = 192.168.001.254)
   Note: Must match static IP in drive (P20.3.2)



2. Address mode must be changed on the drive. Use the keypad to change P20.3.1: IP Address Mode to “Static IP”.
3. Power cycle drive for new IP Address Mode to save



Step 3.1: PC Ethernet Port Configuration

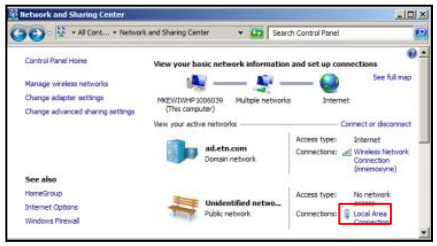
4. The IP Address for the Ethernet port on the host computer must be set. The computer should detect the connected drive and display it in the “Network and Sharing” section of the control panel as an unidentified network.

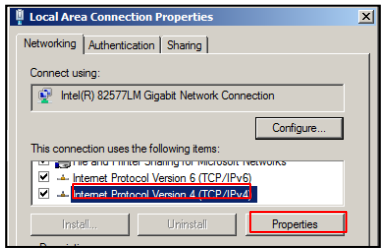
   Set IP address of Ethernet port on PC to “192.168.001.*050*”

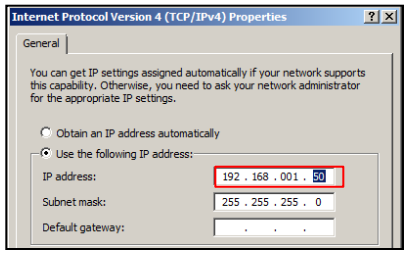
   a. First 3 octets (192.168.001) *MUST* match that of the drive

   b. Last octet (.050) *CANNOT* match that of the drives IP

   Note: Go to Control Panel, Network & Sharing , Local Area Conn., Int. Protocol Ver. 4, Properties

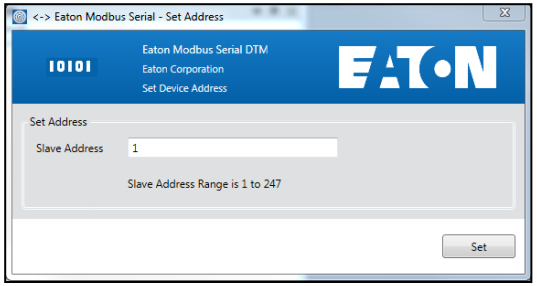






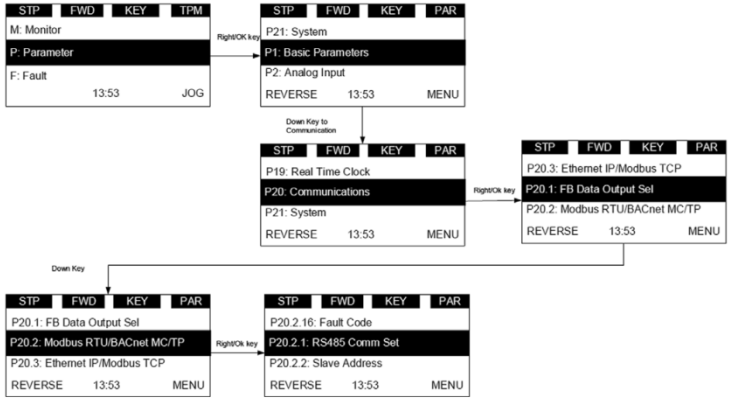
Step 3.2How to Setup – Modbus Serial

1. Device slave address will auto appear Set the slave address of the drive (Software Default = 1) Click Set.



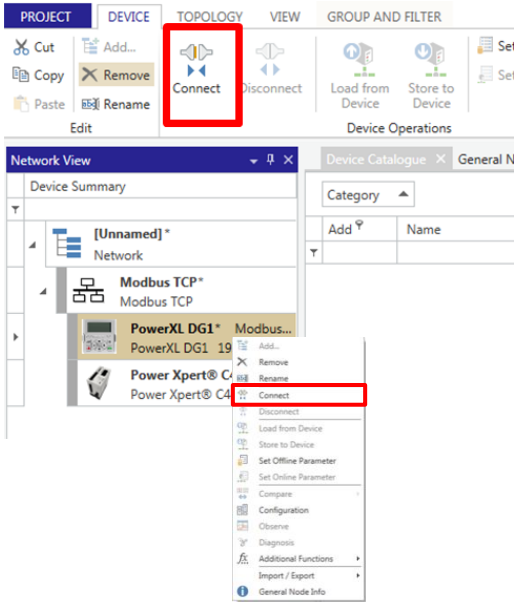
   1. If using RS45-to-RJ45 – Must be 18
   2. If using RS485 – no restriction

2. The slave address on the drive must match what is set in step 1. Use the drives keypad to change P20.2.2: Slave Address to match what was set in the software

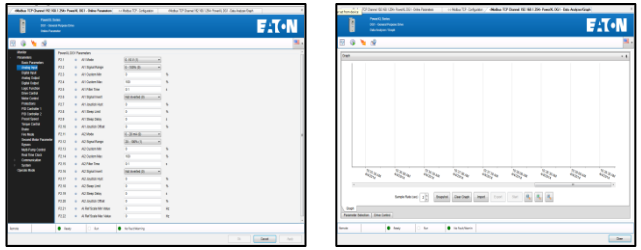


Step 4: Connecting the Drive

1. After setting up Communication device, Right click on the added Drive and select “Connect”. Then Double Click on the Drive. The drive window will Open, bottom of window shows drive is connected.



2. The PowerXL DG1 is now ready for programming and configuration.



Firmware Upgrade

PowerXL DG1

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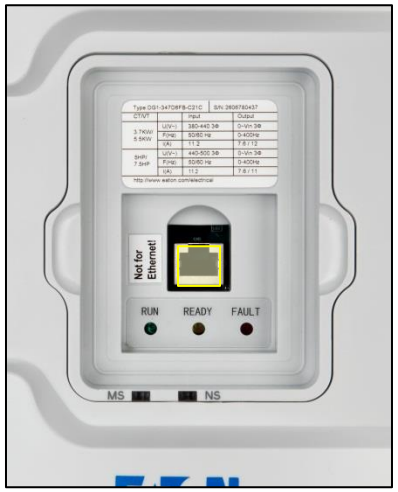
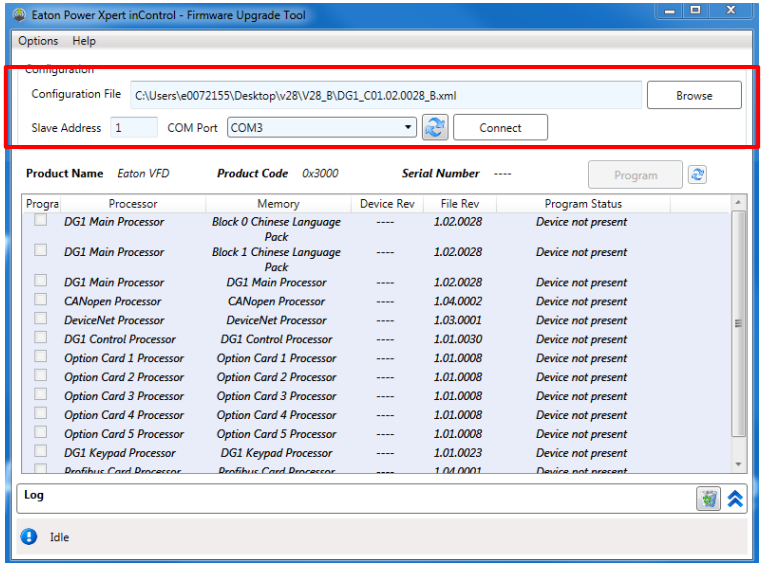
USB to RJ45 (RS485) Connection



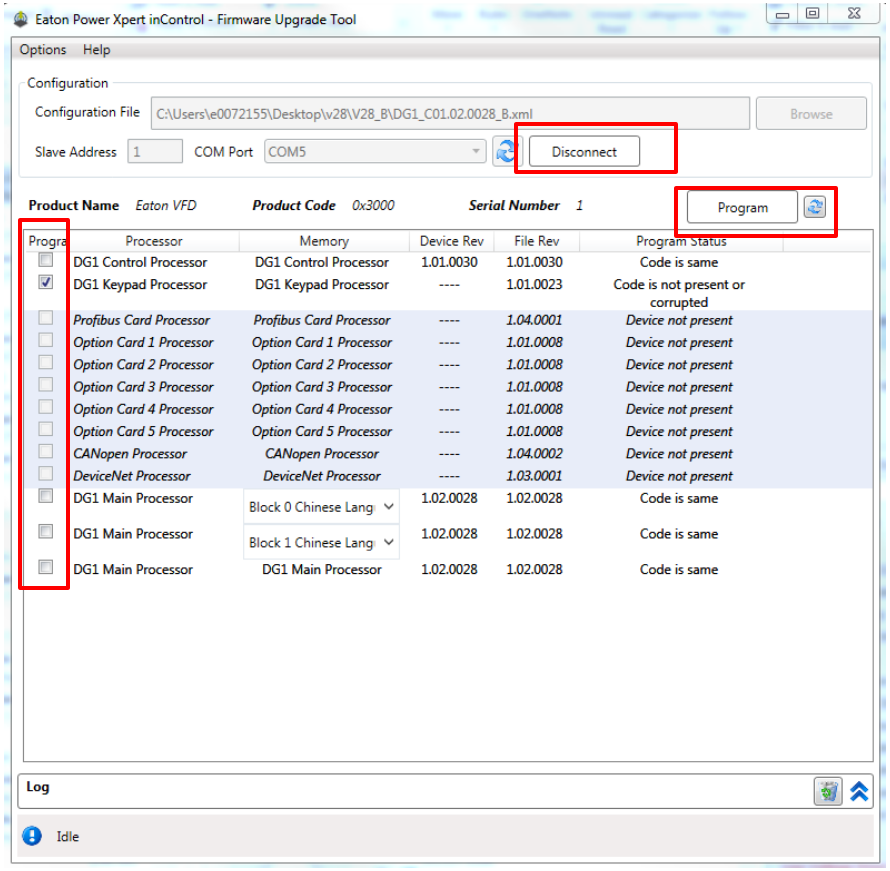
- Catalog Number: DXG-CBL-PCCABLE

Firmware Upgrade Tool



- Installed with One Installer or via separate link
- Download Bundled DG_VXX.XX.XXXX
  - Firmware File - DG_BXX.XX.XXXX
  - Configuration File - DG_CXX.XX.XXXX – Select this file in Config file area
- Select Com port
- Select Slave Address of Drive
- Click “Connect”

Firmware Upgrade Tool



- All processors will be checked by default if code is not updated.
- Click “Program”
- Progress bars are shown for each processor
- When finished click “Disconnect”.
- Plug Keypad in
- Upload firmware to keypad, press “Ok”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