THE REYNOLDS COMPANY
ELECTRICAL SUPPLY

TechTalks
Online Seminars

Legacy PowerFlex 4 Series and 7 Series Migration To PowerFlex 520 Series and 750 Series

May 12, 2020

Our presentation will begin at 10:00 am Central

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Presenter
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The Reynolds Company
DFW

PowerFlex 4 Series to PowerFlex 520 Series

PowerFlex 70/700 to PowerFlex 750 Series

Lifecycle Status Definitions

- **Active:** Most current offering within a product category.
- **Active Mature:** Product is fully supported, but a newer product or family exists. Gain value by migrating.
- **End Of Life:** Discontinued date announced - actively execute migrations and last time buys. Product generally orderable until the discontinued date.[1]
- **Discontinued:** New product no longer manufactured or procured.[2] Repair/exchange services may be available.

[1]Outages on specific items may occur prior to the Discontinued date.
[2]Limited stock may be available in run-out mode, regionally.

PowerFlex 4-Class Drives





	PowerFlex 4M	PowerFlex 4	PowerFlex 40	PowerFlex 400	PowerFlex 40P
Ratings	0.2 – 11 kW (0.25 – 15 Hp) 120, 240, 480 Volts	0.2 – 3.7 kW (0.25 – 5 Hp) 120, 240, 480 Volts	0.4 – 11 kW (0.5 – 15 Hp) 120, 240, 480, 600 Volts	2.2 – 110kW (3 – 150 Hp) 240, 480 Volts	0.4 – 11 kW (0.5 – 15 Hp) 240, 480, 600 Volts
Motor Control	Volts/Hertz Slip Compensation	Volts/Hertz Slip Compensation	Volts/Hertz Sensorless Vector Control Slip Compensation	Volts/Hertz Slip Compensation Auxiliary Motor Control	Volts/Hertz Sensorless Vector Control Slip Compensation or Encoder Trim Position Regulator Mode
Safety	NA			NA	Safe Torque Off
Step Logic	NA		8 Steps biased on Time	NA	8 Steps biased on Time or Position
Communications	Integral RS 485 (Modbus RTU) Optional: DeviceNet, Ethernet/IP, ControlNet & Other 3rd Party	Integral RS 485 (Modbus RTU) Optional: DeviceNet, Ethernet/IP, ControlNet & Other 3rd Party	Integral RS 485 (Modbus RTU) Optional: DeviceNet, Ethernet/IP, ControlNet & Other 3rd Party	Integral RS 485 (Modbus RTU), Metasys N2 & P1-FLN Optional: DeviceNet, Ethernet/IP, ControlNet & Other 3rd Party	Integral RS 485 (Modbus RTU) Optional: DeviceNet, Ethernet/IP, ControlNet & Other 3rd Party

PowerFlex® 4M AC Drive

- **Drive Ratings**:
  - 100-120V, 1Ø, 0.2…1.1 kW • 0.25…1.5 Hp • 1.6…6 A
  - 200-240V, 1Ø, 0.2…2.2 kW • 0.25…3.0 Hp • 1.6…11 A
  - 200-240V, 3Ø, 0.2…7.5 kW • 0.25…10 Hp • 1.6…33 A
  - 380-480V, 3Ø, 0.4…11 kW • 0.5…15 Hp • 1.5…24 A
- **Motor Control**
  - V/Hz Motor Control
  - Slip Compensation
- **Features**
  - Feed through wiring design
  - Drive overload protection
  - Ramp Regulation

- **Active:** Most current offering within a product category.

PowerFlex® 4 AC Drive

- **Drive Ratings**:
  - 100-120V, 1Ø, 0.2…1.1 kW • 0.25…1.5 Hp • 1.5…6 A
  - 200-240V, 1Ø, 0.2…2.2 kW • 0.25…3 Hp • 1.4…9.6 A
  - 200-240V, 3Ø, 0.2…3.7 kW • 0.25…5 Hp • 1.4…17.5 A
  - 380-480V, 3Ø, 0.37…3.7 kW • 0.5…5 Hp • 1.4…8.7 A
- **Motor Control**
  - V/Hz Motor Control
  - Slip Compensation

- **Active Mature**: Product is fully supported, but a newer product or family exists. Gain value by migrating

PowerFlex® 40 AC Drive

- **Drive Ratings :**
  - 100-120V, 1Ø, 0.4…1.1 kW • 0.5…1.5 Hp • 2.3…6 A
  - 200-240V, 1Ø, 0.4…2.2 kW • 0.5…3 Hp • 2.3…12 A
  - 200-240V, 3Ø, 0.4…7.5 kW • 0.5…10 Hp • 2.3…33A
  - 380-480V, 3Ø, 0.4…11 kW • 0.5…15 Hp • 1.4…24 A
  - 480-600V, 3Ø, 0.75…11 kW • 1…15 Hp • 1.7…19 A
- **Motor Control**
  - V/Hz Motor Control
  - Sensorless Vector Control with Autotune Feature
  - Process PID

Active: Most current offering within a product category.

Active Mature: (Open Style) Product is fully supported, but a newer product or family exists. Gain value by migrating.

- **Features**
  - Drive Overload Protection
  - Ramp Regulation
  - PID Control
  - StepLogic™
  - Flying Start

PowerFlex 40 AC Drives NEMA/UL Type 4X/12 Up through 5 Hp

PowerFlex® 40P AC Drive

- **Drive Ratings :**
  - 200-240V, 3Ø, 0.37…7.5 kW • 0.5…10 Hp • 2.3…33 A
  - 380-480V, 3Ø, 0.37…11 kW • 0.5…15 Hp • 1.4…24 A
  - 480-600V, 3Ø, 0.75…11 kW • 1…15 Hp • 1.7…19 A
- **Motor Control**
  - V/Hz Motor Control
  - Sensorless Vector Control with Autotune Feature
    - Slip Compensation or Encoder Trim
  - Process PID
  - Position Control Mode

Active: Most current offering within a product category.

Active Mature: (Open Style) Product is fully supported, but a newer product or family exists. Gain value by migrating.

- **Features**
  - Drive Overload Protection
  - Ramp Regulation
  - PID Control
  - StepLogic™
  - Flying Start
  - Encoder/Pulse Train Feedback
  - DriveGuard® Safe-off (optional)

DriveGuard®

PowerFlex® 400 AC Drive

- **Drive Ratings**
  - 200-240V, 2.2…37 kW • 3.0…50 Hp • 12…145 A
  - 380-480V, 2.2…250 kW • 3.0…350 Hp • 6…460 A
- **Motor Control**
  - V/Hz Motor Control
  - Slip Compensation
- **Active:** Most current offering within a product category.

- **Features**
  - Sleep/Wake
  - PID Control
  - Flying Start
  - Purge Input
  - Damper Input
  - Multi-stage pump control
  - Hand/Off/Auto
  - Drive Overload Protection
  - Integral Metasys N2 and Apogee FLN P1 communications
  - Optional LonWorks and BACnet communications
  - 3 contactor bypass

PowerFlex 520-Series AC Drives

PowerFlex 523 Overview

- The PowerFlex 523 AC drive is ideal for standalone machines and designed to help reduce configuration and installation time and costs
  - Control for standalone machines
  - Greater installation flexibility
  - Use standard USB for upload/download drive configuration
  - Ease of configuration with HIM, application programming groups and software tools

Power Ratings:

- 100 - 120V: 0.2...1.1 kW / 0.25...1.5 Hp
- 200 - 240V: 0.2...15 kW / 0.25...20 Hp
- 380 - 480V: 0.4...22 kW / 0.5...30 Hp
- 525 - 600V: 0.4...22 kW / 0.5...30 Hp

PowerFlex 523-AC Drives

- **Power Ratings**
  - 100 - 120V: 0.4...1.1 kW / 0.5...1.5 Hp
  - 200 - 240V: 0.4...15 kW / 0.5...20 Hp
  - 380 - 480V: 0.4...22 kW / 0.5...30 Hp
  - 525 - 600V: 0.4...22 kW / 0.5...30 Hp
- **Motor Control Performance**
  - V/Hz, SVC, Economizer SVC
- **Communications**
  - Embedded DSI
  - Optional dual-port card for EtherNet/IP supporting ring topologies and DLR functionality
  - Other optional cards for DeviceNet™ and Profibus DP available
- **Input / Output**
  - 5DI (4 programmable), 1AI, 1RO (Form C)
- **Other Features**
  - 7th IGBT braking, PID, Common DC Bus, ½ Line Voltage operation
  - Fiber features: Traverse and P-Jump, PointStop™ position control
  - Multi-drive connectivity
  - Data Links: 8 (4 in, 4 out)
- **Global Standard**
  - UL, cUL. CE, C-Tick, RoHS, GOST-R, KCC, REACH, ACS 156

PowerFlex 520-Series AC Drives

PowerFlex 523

Power ratings of 0.2...11 kW / 0.25...15 Hp in global voltage classes of 120, 240, 480 and 600 volts. Available in four frame sizes (A, B, C and D).

Volts per hertz, sensorless vector control and Economizer mode in sensorless vector control to meet a wide range of applications.

An embedded DSI port comes standard. With a communication adapter card, PowerFlex 523 AC drives support multi-drive networking, connecting up to fi ve PowerFlex AC drives on one node.

- 5 digital inputs (24V DC, 4 programmable)
- 1 analog input (unipolar voltage or current)
- 1 relay (form C)

PowerFlex 520-Series AC Drives

PowerFlex 525 Overview

- Power, control, flexibility and features for a wide range of applications
- Ideal for standalone machines and simple system integration
  - Unique modular design
  - Seamless integration into Logix control architectures
  - Built-in port for EtherNet/IP and Safe Torque-off standard
  - Easy to use configuration tools
  - Flexible installation and motor control options, including permanent magnet motor control

Power Ratings:

- 100 - 120V: 0.4...1.1 kW / 0.5...1.5 Hp
- 200 - 240V: 0.4...15 kW / 0.5...20 Hp
- 380 - 480V: 0.4...22 kW / 0.5...30 Hp
- 525 - 600V: 0.4...22 kW / 0.5...30 Hp

PowerFlex 525-AC Drives

- **Power Ratings**
  - 100 - 120V: 0.4...1.1 kW / 0.5...1.5 Hp
  - 200 - 240V: 0.4...15 kW / 0.5...20 Hp
  - 380 - 480V: 0.4...22 kW / 0.5...30 Hp
  - 525 - 600V: 0.4...22 kW / 0.5...30 Hp
- **Motor Control Performance**
  - V/Hz, SVC, Economizer SVC
  - Closed loop velocity vector control
  - Permanent magnet motor control
- **Positioning**
  - Closed loop feedback allows positioning capability
- **Communications**
  - Embedded DSI and single port EtherNet/IP
  - Optional dual port card for EtherNet/IP supporting ring topology & DLR functionality
  - Optional cards for DeviceNet, Profibus
- **Embedded Safety**
  - Safe Torque-Off SIL2/PLd
- **Input / Output**
  - 7DI (6 programmable), 2AI, 2DO, 1AO, 2RO (1 Form A & 1 Form B)
- **Other Features**
  - 7th IGBT braking, 2PID, Common DC Bus, ½ Line Voltage operation
  - Fiber features: Traverse and P-Jump, PointStop™ position control
  - Multi-drive connectivity
  - Data links: 8 (4 in, 4 out)
- **Global Standard**
  - UL, cUL. CE, C-Tick, RoHS, GOST-R, KCC, REACH, Marine (Lloyds), ATEX, TUV, Semi-F47, ACS 156

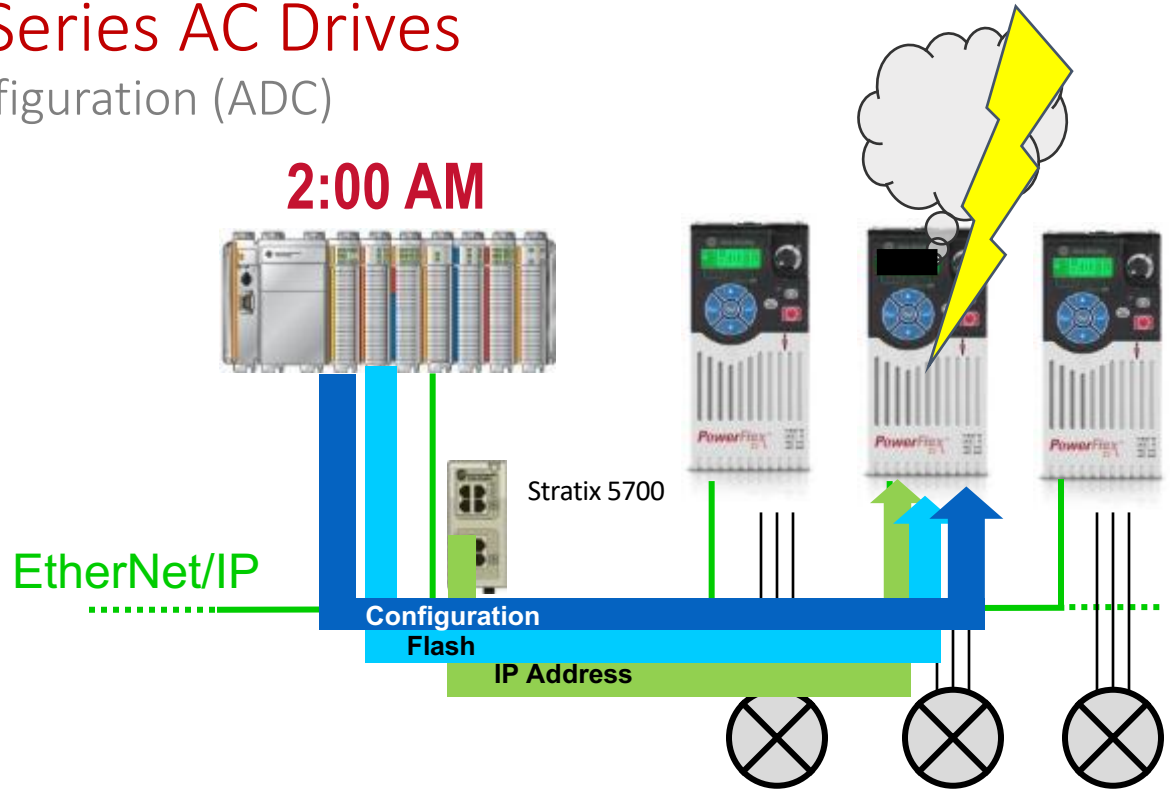
PowerFlex 520-Series AC Drives

PowerFlex 525

- Power ratings of 0.4...22 kW / 0.5...30 Hp in global voltage classes of 120, 240, 480 and 600 volts. Available in five frame sizes (A, B, C, D and E).
- Volts per hertz, sensorless vector control, closed loop velocity vector control and permanent magnet motor control to meet a wide range of applications.
- An embedded port for EtherNet/IP supports seamless integration into the Logix environment and EtherNet/IP networks
- An embedded DSI port supports multi-drive networking, connecting up to five PowerFlex AC drives on one node.
- • 7 digital inputs (24V DC, 6 programmable)
  • 2 analog inputs (1 bipolar voltage, 1 current)
  • 2 digital outputs
  • 1 analog output (1 unipolar voltage or current)
  • 2 relays (1 form A relay & 1 form B relay; 24V DC, 120V AC, 240V AC)
- Embedded Safe Torque Off can help to protect personnel.

PowerFlex 520-Series AC Drives

Automatic Device Configuration (ADC)



Attribute	PowerFlex 523	PowerFlex 525	PowerFlex 527
Automatic Device Configuration	Optional with Dual Port Ethernet Card	Embedded single port as part of the architecture	Embedded dual port as part of the architecture

PowerFlex 520-Series AC Drives

Automatic Device Configuration (ADC)

Helps save time and money by reducing downtime

- ADC allows you to configure a Logix system to automatically download a drive's configuration
- Ideal for drive replacement
- ADC is a Logix Version 20 and above feature
- Also complements:
  - Stratix 8000, 6000, 5700 & 5400 switches
    - Automatically assigns IP Address
  - Firmware Supervisor
    - Flashes the drive and peripherals

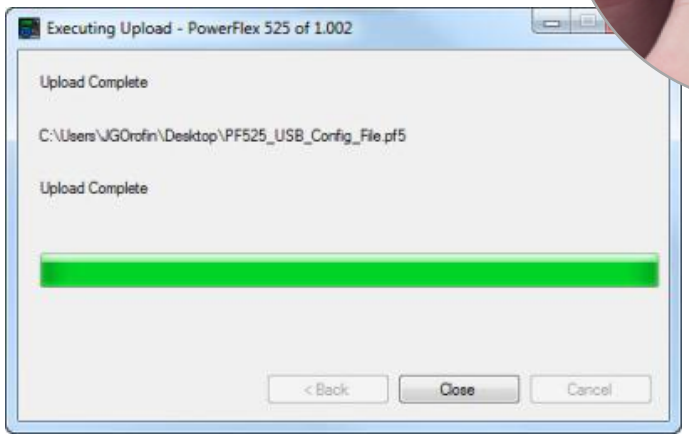
Download button

Add-On Profile (AOP) of desired drive in RSLogix 5000

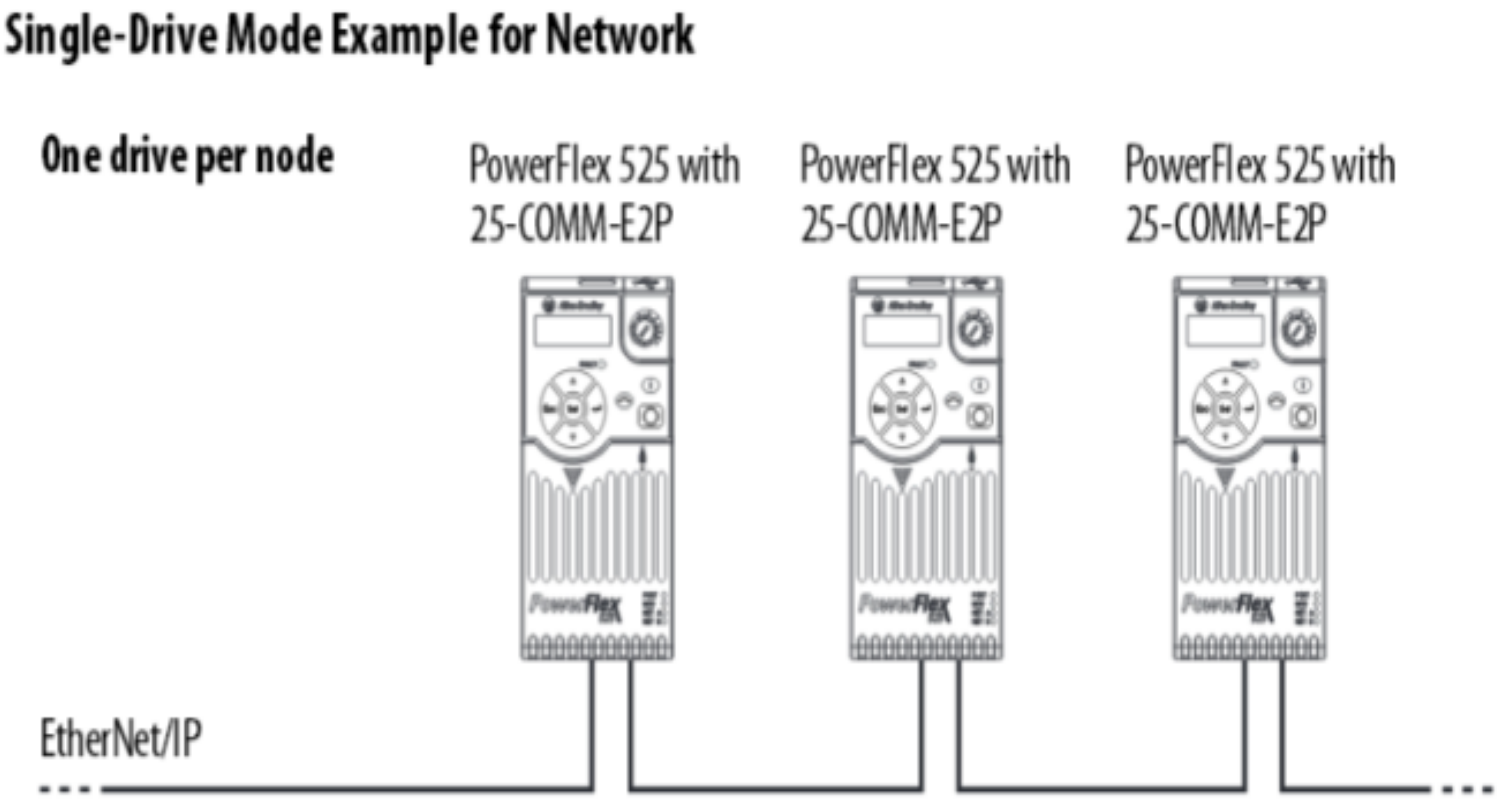
PowerFlex 520-Series AC Drives

Installation and Configuration

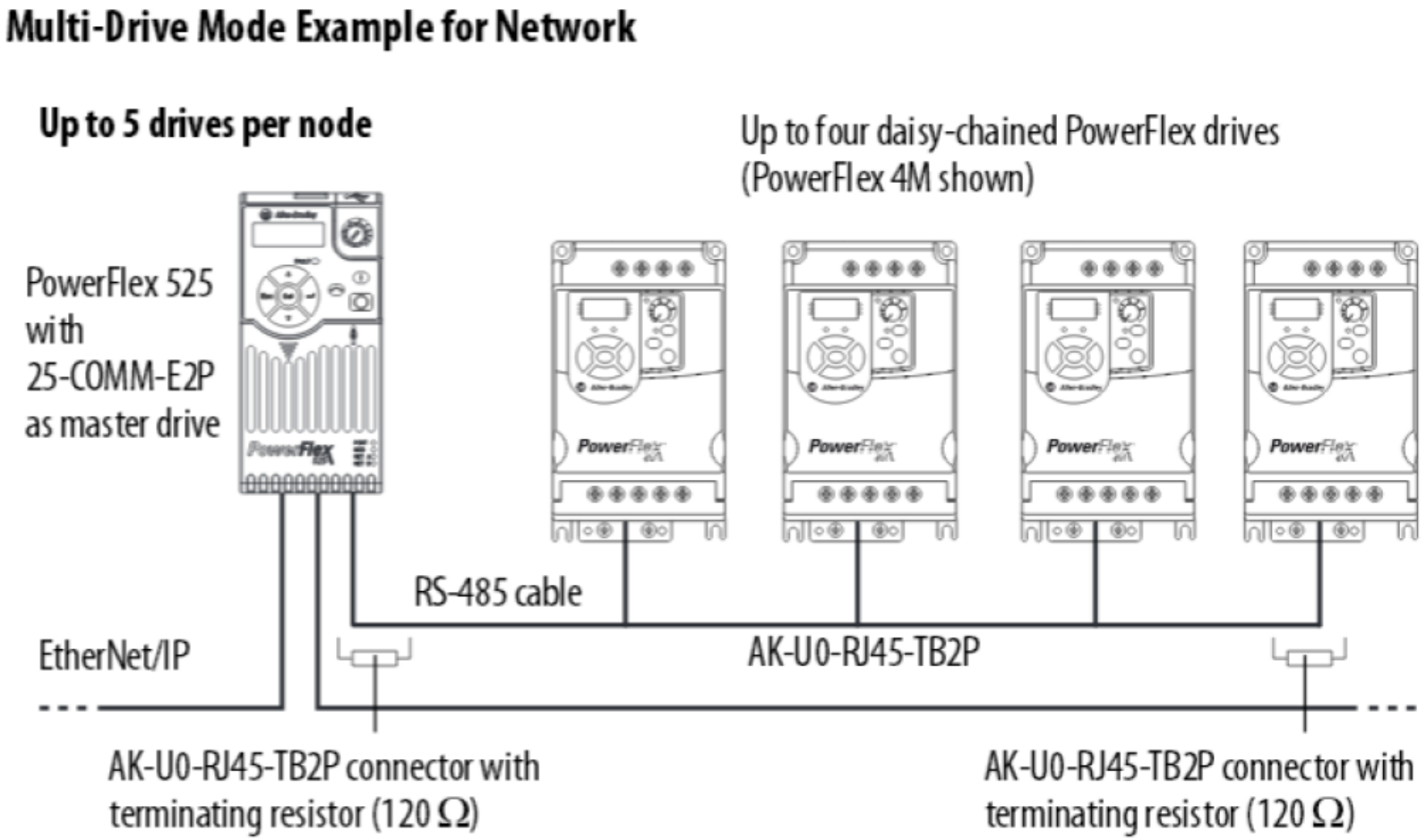
- USB connection is for upload/download of configuration file *(PowerFlex 523 and 525 only)*
  - Functions as a data transfer port only:
    - Upload
    - Download
    - Flash
  - No online programming via USB
- Configuration file created in Connected Components Workbench software
  - Software does not need to reside on PC to download a file
- The USB configuration is similar to synchronizing a smart device with a computer



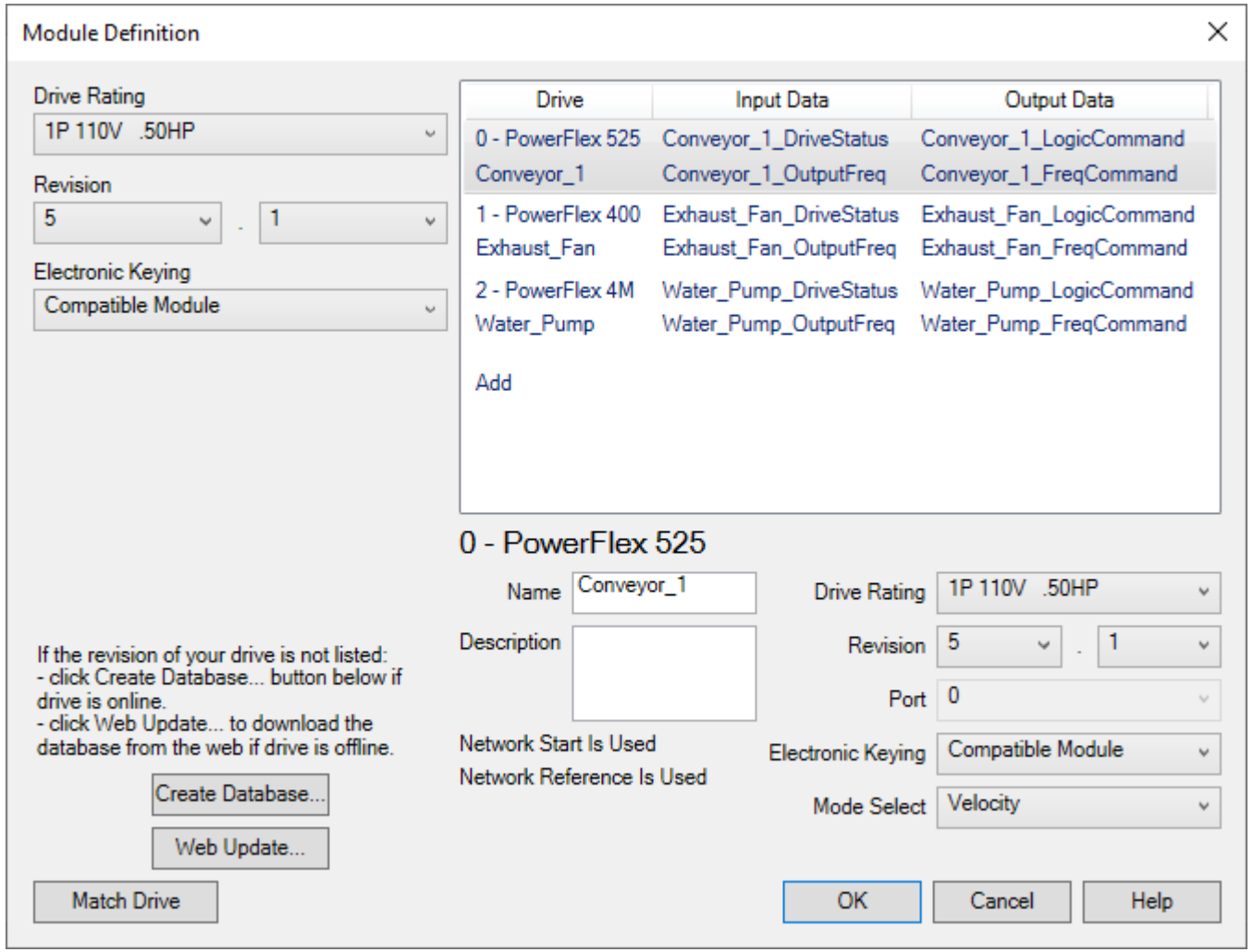
Typical Layout Configuration on EtherNet/IP



- Multi-mode Configuration using Ethernet/IP and RS485



Multi-Drive Configuration - EtherNet



- # Multi-Drive Configuration - EtherNet

Controller Tags - Mult_Drive(controller)

Scope: Mult_Drive Show: All Tags

Name	Value	Force Mask	Style	Data Type	Description
Mulit_Drive:I.Conveyor_1_DigIn1Active	0		Decimal	BOOL	
Mulit_Drive:I.Conveyor_1_DigIn2Active	0		Decimal	BOOL	
Mulit_Drive:I.Conveyor_1_DigIn3Active	0		Decimal	BOOL	
Mulit_Drive:I.Conveyor_1_DigIn4Active	0		Decimal	BOOL	
+ Mulit_Drive:I.Conveyor_1_OutputFreq	0		Decimal	INT	
+ Mulit_Drive:I.Exhaust_Fan_DriveStatus	2#0000_0000_0000_0000		Binary	INT	
Mulit_Drive:I.Exhaust_Fan_Ready	0		Decimal	BOOL	
Mulit_Drive:I.Exhaust_Fan_Active	0		Decimal	BOOL	
Mulit_Drive:I.Exhaust_Fan_CommandDir	0		Decimal	BOOL	
Mulit_Drive:I.Exhaust_Fan_ActualDir	0		Decimal	BOOL	
Mulit_Drive:I.Exhaust_Fan_Accelerating	0		Decimal	BOOL	
Mulit_Drive:I.Exhaust_Fan_Decelerating	0		Decimal	BOOL	
Mulit_Drive:I.Exhaust_Fan_Alarm	0		Decimal	BOOL	
Mulit_Drive:I.Exhaust_Fan_Faulted	0		Decimal	BOOL	
Mulit_Drive:I.Exhaust_Fan_AtReference	0		Decimal	BOOL	
Mulit_Drive:I.Exhaust_Fan_CommFreqCnt	0		Decimal	BOOL	
Mulit_Drive:I.Exhaust_Fan_CommLogicCnt	0		Decimal	BOOL	
Mulit_Drive:I.Exhaust_Fan_ParmsLocked	0		Decimal	BOOL	

Monitor Tags / Edit Tags

PowerFlex® 70 AC Drive

- **Drive Ratings (normal duty)**
  - 200-240V, 0.37…18.5 kW • 0.5…25 Hp • 2.2…70 A
  - 400-480V, 0.37…37 kW • 0.5…50 Hp • 1.1…65 A
  - 500-600V, 0.37…37 kW • 0.5…50 Hp • 0.9…52 A
- **Motor Control**
  - Vector Control with FORCE™ Technology
  - Sensorless Vector Control
  - Slip Compensation
  - Encoder Speed Control
  - Encoderless Speed Control
  - Torque Regulation
  - V/Hz Motor Control
- **Ambient Temperature Limit for Enclosures**
  - IP66, NEMA/UL Type 4X/12 indoor: 0 to 40° C (32 to 104° F)
- Active: Most current offering within a product category.

- **Features**
  - User Sets
  - Multi Language
  - Adv. Drive Overload Protection
  - Adv. Bus Regulation
  - Adv PID Control (Spd or Trq)
  - Droop
  - Analog Trim/Invert
  - Adv. Flying Start
  - Motor Overload Protection
  - Flux Braking
  - Fiber Features
  - DriveGuard® Safe Torque-off

DriveGuard®

PowerFlex® 700 AC Drive

- **Drive Ratings (normal duty)**
  - 200-240V, 0.37…75 kW • 0.5…100 Hp • 2.2…260 A
  - 400-480V, 0.37…500 kW • 0.5…700 Hp • 1.1…875 A
  - 500-600V, 0.75…132 kW • 1…150 Hp • 1.7…144 A
  - 690V, 0.75…132 kW • 1…150 Hp • 1.7…144 A
- **Motor Control**
  - Vector Control with FORCE™ Technology
  - Sensorless Vector Control
  - Slip Compensation
  - Encoder Speed Control
  - Encoderless Speed Control
  - Torque Regulation
  - V/Hz Motor Control
  - Adjustable Voltage Control

- **Active Mature**: Product is fully supported, but a newer product or family exists. Gain value by migrating
- PowerFlex 700 Frame 7-10 Drives are now discontinued. (480VAC 250HP and above)

- **Features**
  - User Sets
  - Multi Language
  - Adv. Drive Overload Protection
  - Adv. Bus Regulation
  - Adv PID Control (Spd or Trq)
  - Flux Braking
  - Fast Stop
  - Scale Blocks
  - Droop
  - TorqProve™
  - Position Indexing/Speed Profiler
  - Adv. Flying Start
  - Motor Overload Protection
  - Common Bus Capability
  - Parameter Linking
  - Open Motor Lead Detection
  - Pump Jack application firmware

PowerFlex 753 AC Drive

- **Catalog Number:** 20F
- **Drive Ratings (normal duty)**
  - 400/480V, .75…250 kW / 1…350Hp / (2.1…415 A)
  - Frames 2-7

- **Motor Control**
  - Vector Control with FORCE™ Technology
  - Sensorless Vector Control
  - V/Hz Motor Control
  - Adjustable Voltage Control

- **Features**
  - Safe Speed Monitoring Option
  - Safe Torque-Off Option
  - DeviceLogix Embedded
  - Preventative Diagnostics
  - Integral Position Loop
    - Point to Point Positioning
    - Basic Electronic Gearing
  - Standard I/O (3DI, 2DO, AI1, AO1, PTC)
  - Expandable I/O, 24VDC/120VAC Options
  - 24V DC Aux Power Option
  - Real Time Clock
  - Flexible Packaging Options
  - New HIM Option
  - RoHS Compliant
  - Conformal Coated (Standard)
  - Assisted Start-up Routine
  - Analog Loss Detection
  - Encoder Feedback Options
  - Motor Overload Retention
  - Common Bus Capability
  - Adv. Drive Overload Protection
  - Bus Regulation
  - 3 Slots for control options
  - Pump Jack
  - Fibers Application Code

PowerFlex 755 AC Drive

- **Bulletin Number:** 20G
- **Drive Ratings (normal duty)**
  - 400/480V, 7.5…250 kW / 10…350Hp / (15…415 A)
  - Frames 2-7
- **Motor Control**
  - Vector Control with FORCE™ Technology
  - Sensorless Vector Control
  - V/Hz Motor Control
  - Permanent Magnet Motor Control
- **Ambient Temperature Limit for Enclosures**
  - IP 20 / NEMA/UL TYPE 0 = 50° C
  - IP 20 / NEMA/UL TYPE 0 With Flange
    - Factory Installed (IP66 / Type 4X backside)
      - Cabinet Interior = 50° C
      - External Ambient = 40° C
    - Field Installed
      - Cabinet Interior = 50° C
      - External Ambient = 50° C
  - IP 21 Kit / NEMA/UL Type 1 = 50° C
  - IP 54 / NEMA/UL Type 12 = 40° C

- **Features**
  - Safe Speed Monitoring Option
  - Safe Torque-Off Option
  - DeviceLogix Embedded
  - Preventative Diagnostics
  - Embedded Ethernet
  - Integral Position Loop
    - Speed and Position Profiler, Electronic Gearing, PCAM functions
  - Expandable I/O, 24VDC/120VAC Options
  - 24V DC Aux Power Option
  - Real Time Clock
  - Flexible Packaging Options
  - Conformal Coated (Standard)
  - Assisted Start-up Routine
  - Analog Loss Detection
  - Multiple Feedback Options
  - Motor Overload Retention
  - Common Bus Capability
  - Adv. Drive Overload Protection
  - Bus Regulation
  - 5 Slots for control options
  - Feedback Loss Switchover (in speed mode)
  - Inertia Adaptation
  - Permanent Magnet Motor Control
  - TorqProve
  - Integrated Motion on EtherNet/IP (CIP Motion Support- Spring 2010)

Hinge-Cover, Medium, Type 3R | ControlLogix 5570 Controllers | PowerFlex 525 AC Drives: Multi-D | Product Lifecycle Search | Rockw | Connected Components Workbe

ab.rockwellautomation.com/Drives/Software/Connected-Components-Workbench-Software

Apps Bookmarks Bookmarks Money Shopping Manufacturer My Stuff News Rockwell Google c-5 galaxy - Google... Google Calendar -... Getting Started Imported From Fire... Denise Shipping Work Other bookmarks

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Connected Components Workbench Software

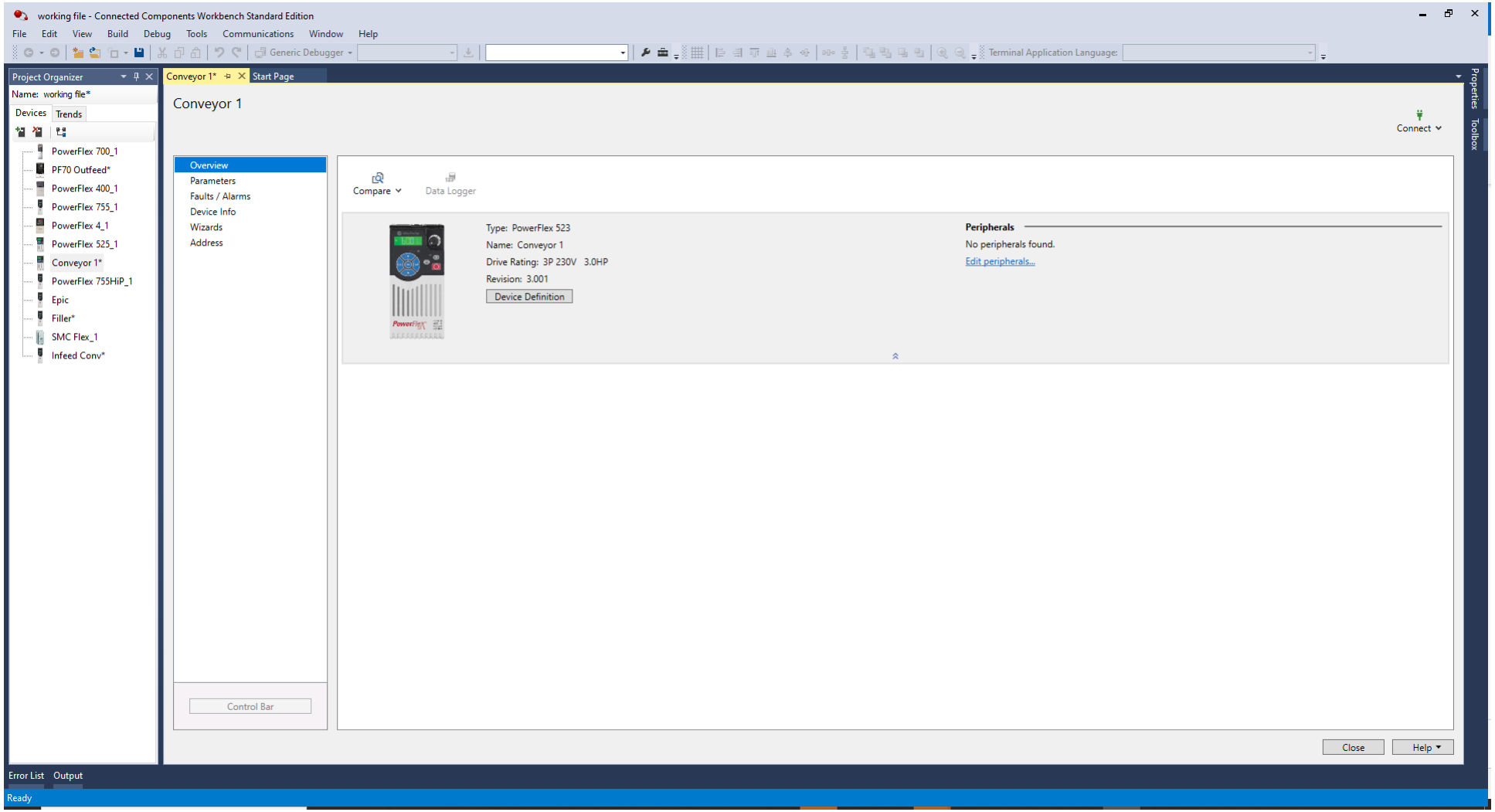
Our Connected Components Workbench software offers controller programming, device configuration, and integration with HMI editor to make programming your standalone machine more simple.

Connected Components Workbench Software

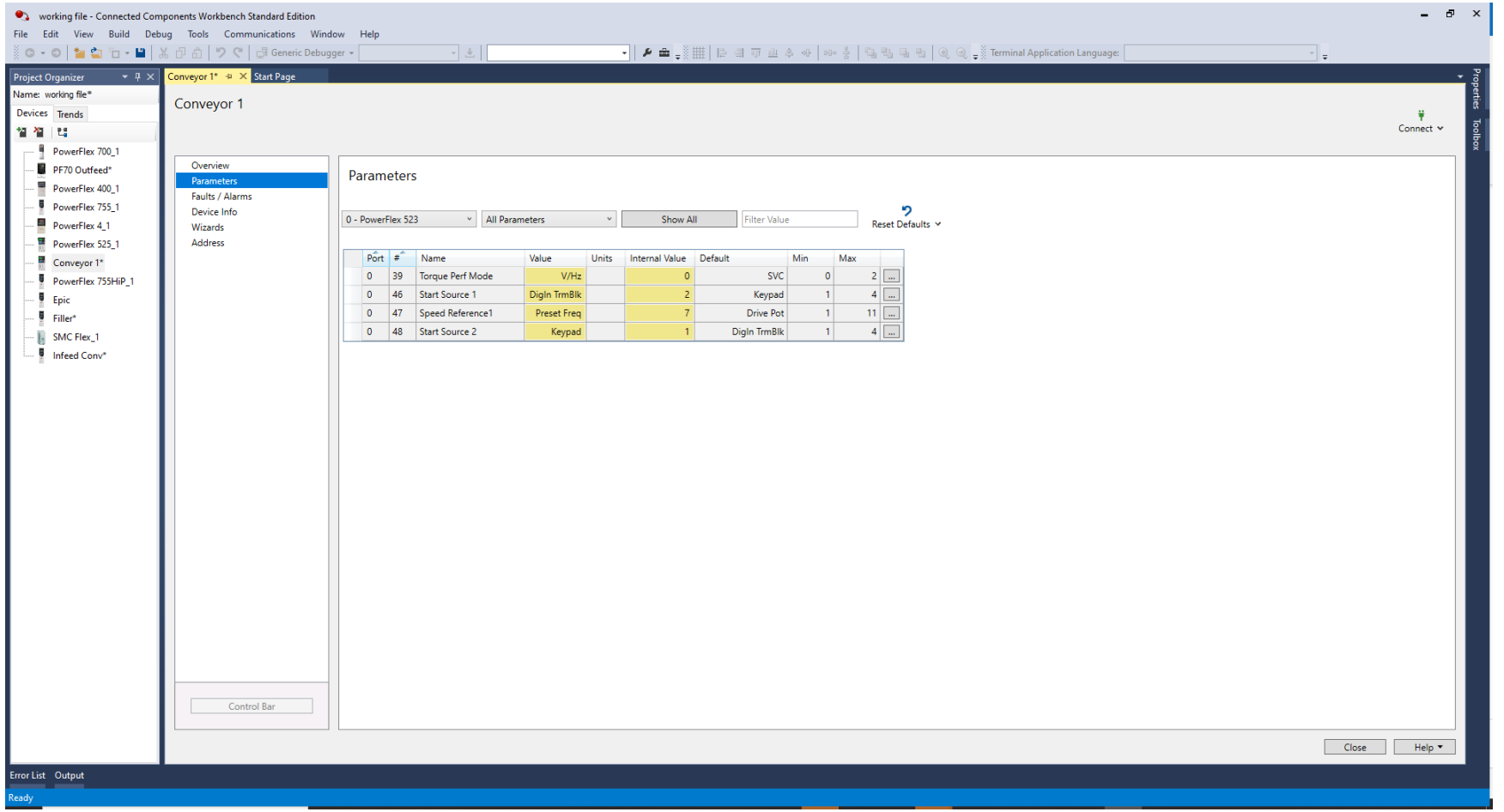
Feedback

Our Company Careers Locations Contact Us

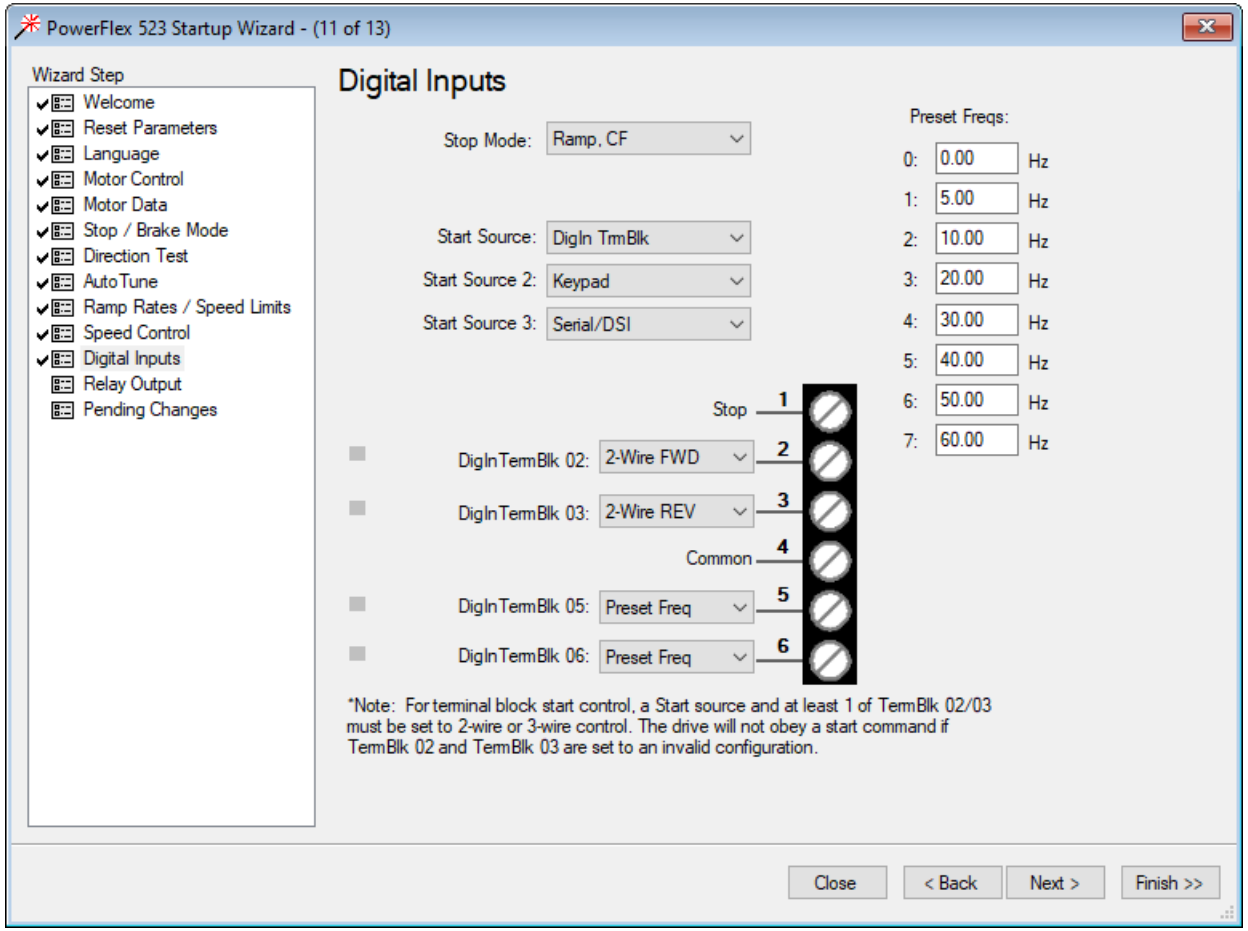
Allen-Bradley by ROCKWELL AUTOMATION


working file - Connected Components Workbench Standard Edition
File Edit View Build Debug Tools Communications Window Help
Project Organizer
Name: working file*
Devices Trends
PowerFlex 700_1
PF70 Outfeed*
PowerFlex 400_1
PowerFlex 755_1
PowerFlex 4_1
PowerFlex 525_1
Conveyor 1*
PowerFlex 755HiP_1
Epic
Filler*
SMC Flex_1
Infeed Conv*
Conveyor 1* Start Page
Conveyor 1
Connect
Overview
Parameters
Faults / Alarms
Device Info
Wizards
Address
Compare
Data Logger
Type: PowerFlex 523
Name: Conveyor 1
Drive Rating: 3P 230V 3.0HP
Revision: 3.001
Device Definition
Peripherals
No peripherals found.
Edit peripherals...
Control Bar
Close
Help
Properties
Toolbox
Error List Output
Ready

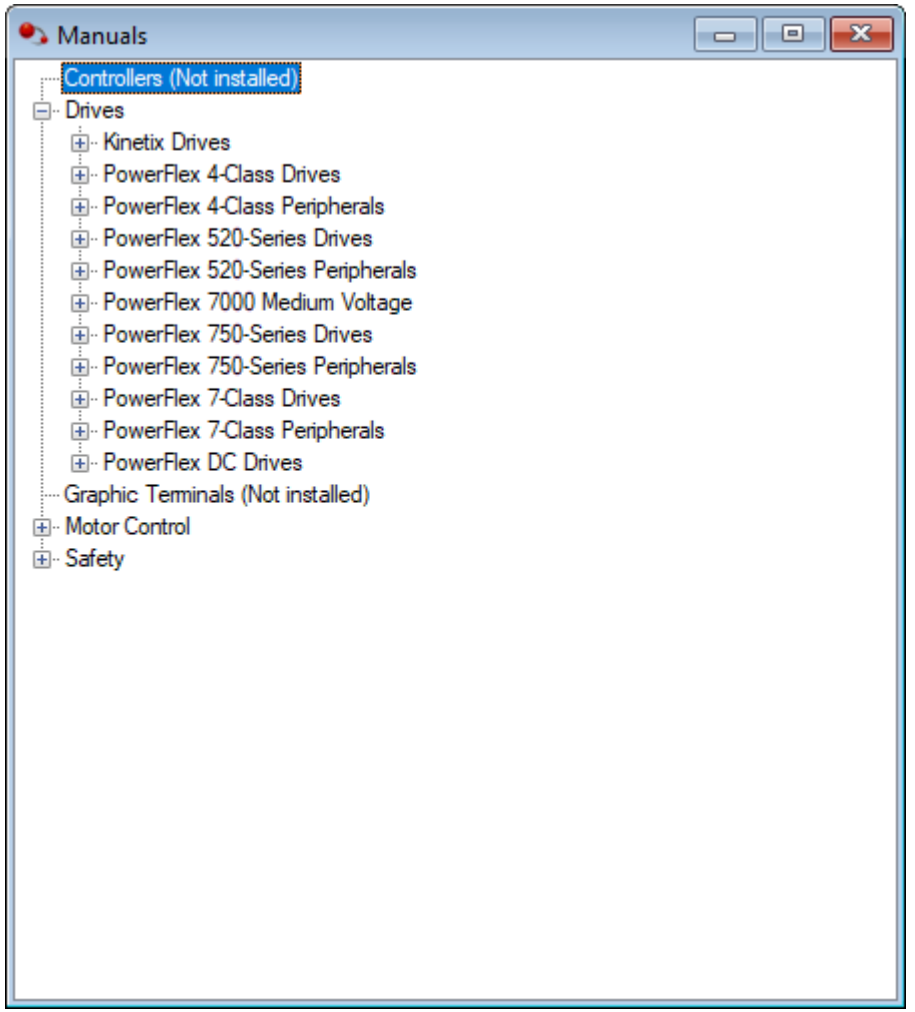
- **Connected Components Workbench Parameter Compare Feature**



- Connected Components Workbench Drive Startup Wizard



- **Connected Components Workbench Drive Manuals**



Thank You for Attending!