



Parker Automation Controller QuickStart

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Parker Automation Controller

QuickStart

Introduction

This shows step-by-step instructions how to configure and setup a Parker Automation Controller with a Compax3 EtherCAT servo drive, import a simple program and get motion quickly. These instructions show screen captures of the PAC Integrated Development Environment (IDE) software and C3 ServoManager to help show these steps. The first step is to configure the Compax3 using the C3 ServoManager software and setting the EtherCAT & DS402 parameters. The second part is to start the PAC IDE, auto scan for the EtherCAT devices and set the EtherCAT network parameters, import a sample program and then download & run.

Compax3

- **Device Selection**
- **I31T11 Drive Configuration**
- **EtherCAT & DS402 settings**

EtherCAT connections

PAC

- **Launch PAC software**
- **Start a Standard Project**
- **Connecting to PAC**
- **Discover EtherCAT devices**
- **Add SoftMotion Axis**
- **Rename SoftMotion axis**
- **Rename Axis & Set Scaling**
- **Parker Motors & Mechanics**
- **Set EtherCAT Master Task to External**
- **Set EtherCAT_Master Distributed Clock**
- **Set Compax3 EtherCAT**
- **Download & Import Sample Program**
- **Organize Project**
- **Set Distance/Velocity/Accel**
- **Build (F11)**
- **Login / Download**
- **Start PAC Application (F5)**
- **Watch List**
- **Online Monitoring & Stop Application**
- **Application in Stop & Reset Cold**

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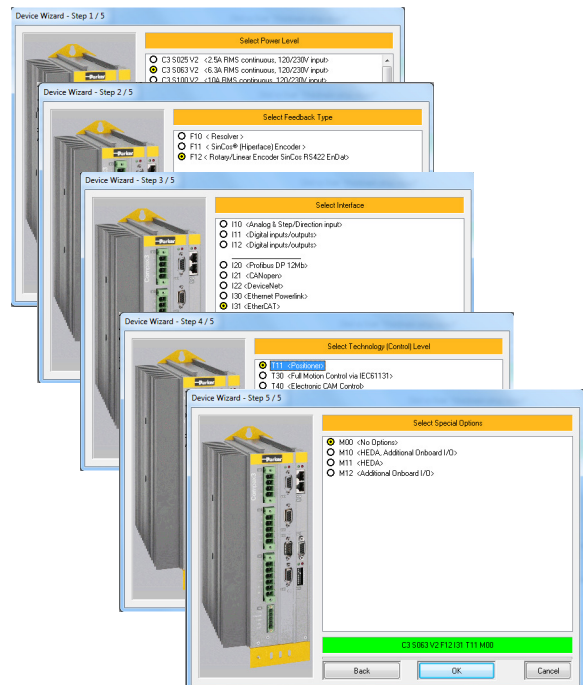
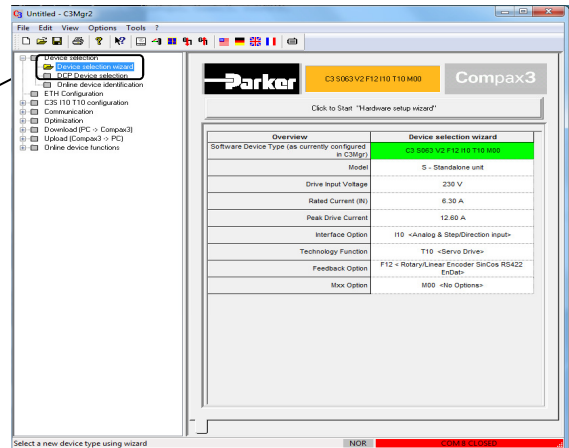
QuickStart

Purpose

This document describes how to start a new application with the PAC and get basic motion with the PAC with a Compax3 EtherCAT servo drive. First we'll show how to configure the Compax3-I31 for the PAC. Then we'll show configuring the PAC using the PAC IDE software. For PAC users that are using the PLC only version (PAC320-P), skip to page 16.

Device Selection

- Launch C3 Servo Manager
- Double-click on Device Selection Wizard
 - Device Selection
 - Device Selection Wizard
 - Online Device Identification
- This will launch the wizard that allows you to select the appropriate model
 - ✓ Screen 1: SxxxVx or MxxxD6 or HxxxV4 (select your power level)
 - ✓ Screen 2: Fxx (select your feedback type)
 - ✓ Screen 3: I31 (Choose I31 for EtherCAT)
 - ✓ Screen 4: T11 (Choose I11)
 - ✓ Screen 5: M00 (Choose M00 for no options)
- You will end up with a part number that looks like: **S063V2F12I31T11M00** and should match the label on the side of your drive

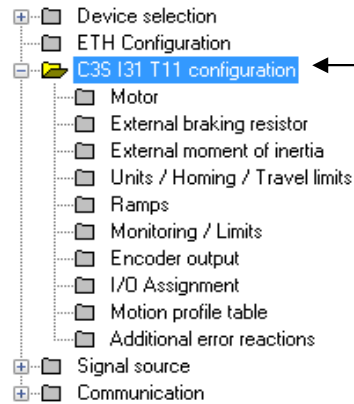


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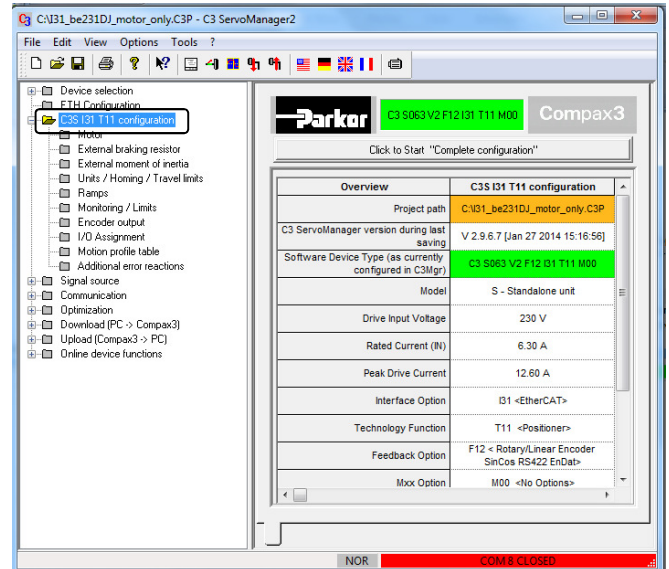
QuickStart

Drive Configuration

- Double-click on “I31T11 Drive Configuration”

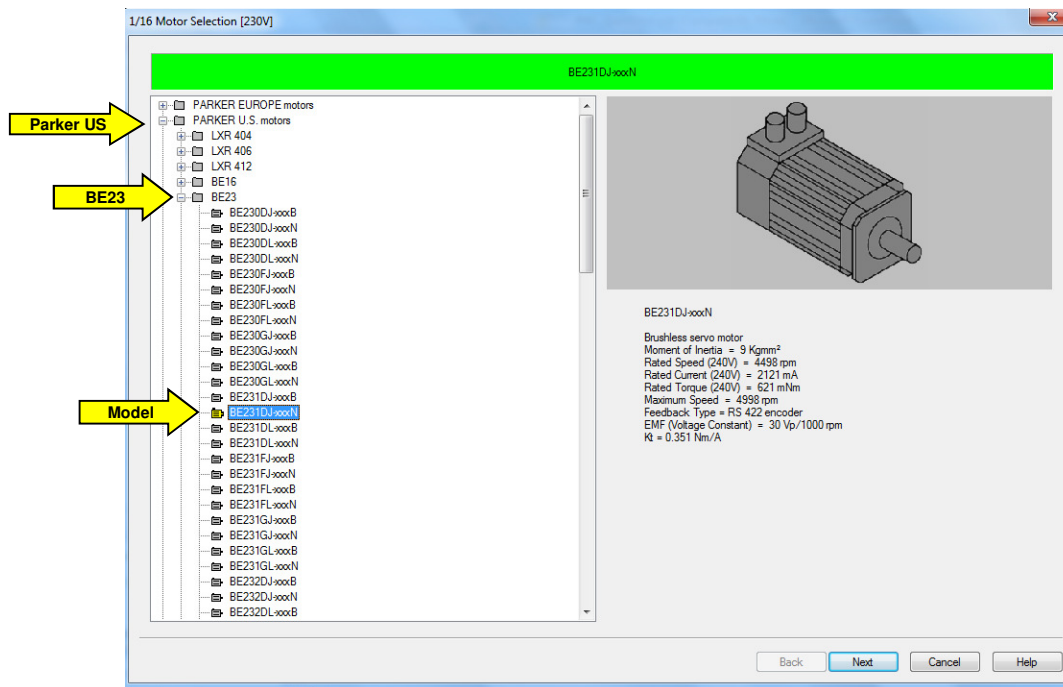


- The Drive Configuration Wizard opens and you will need complete 16 steps – though only a few need input.



Step 1: Motor Selection

- You will need to select the motor you are using
- See the picture below to see how the BE23 motor is found:



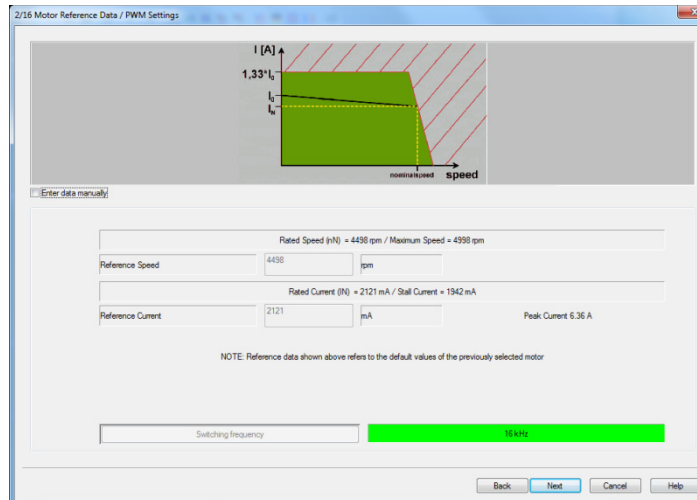
- Click “Next”

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Step 2: Motor Reference Data / PWM Settings

- This step needs no input from you
- This data is populated from the motor files
- Click “Next”



Step 3: Motor Selection

- Select the Parker part number for braking resistor using – or enter the user defined value
- Ignore this screen if not using a resistor

Function	Value	Unit
Braking Resistor	No External Braking Resistor	
	No External Braking Resistor	
	User-Defined Values	
	BRM 05/01	

The Compax3 already has internal braking resistance, however, if your needs exceed the braking capabilities, you may need to use a Parker BRM braking module. See manual for recommended combinations.

- Click “Next”

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Step 4: This step is omitted

Step 5: Moment of Inertia

Function	Value	Unit
Minimum External Moment of Inertia	0	Kgmm²
Maximum External Moment of Inertia	0	Kgmm²
External inertia is unknown; Use Default values:	<input type="checkbox"/>	

Minimum External Moment of Inertia

Back Next Cancel Help

- **This is the most important tuning step**
 - ✓ The Compax3 uses this for gains.
 - ✓ The closer you are to the correct inertia of your load, the better your system will be tuned.
 - ✓ Suggestion: Use the value from MotionSizer.
- **Enter the same load value in both the “Minimum” and the “Maximum” locations.**
 - ✓ Only if your load isn’t changing
 - ✓ If load changes (example picking up a box, then placing box) enter “Min” and “Max” respectively.
- **“External Inertia is unknown”**
 - ✓ Do not check the box – if you do, call Parker Applications Engineering for help with this AutoTuning Feature.
 - ✓ Or see free Video training: www.parkermotion.com > FAQ > Compax3 > [VIDEO: How do I tune a Compax3? \(auto-tune\)](#)
- **Click “Next”**

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Step 6: Distance / Travel Parameters

- Select INCREMENTS for units of travel
- Travel Distance per revolution: Use Motors post-quadrature Encoder or Resolver resolution
Note: See page 25 for feedback resolution based on motor model number
- Travel Distance per revolution-Denominator: This should always be 1
This is because the PAC's setpoint is an integer value.
- The other fields can be left at the default as shown.
- Motor direction can be reversed by setting Invert Motor Rotation/Direction Sense. Default motor direction is clockwise looking at the motor shaft or for IForce or Ripped linear motors, extending away from the cable entry.

6/16 Distance / Travel Parameters

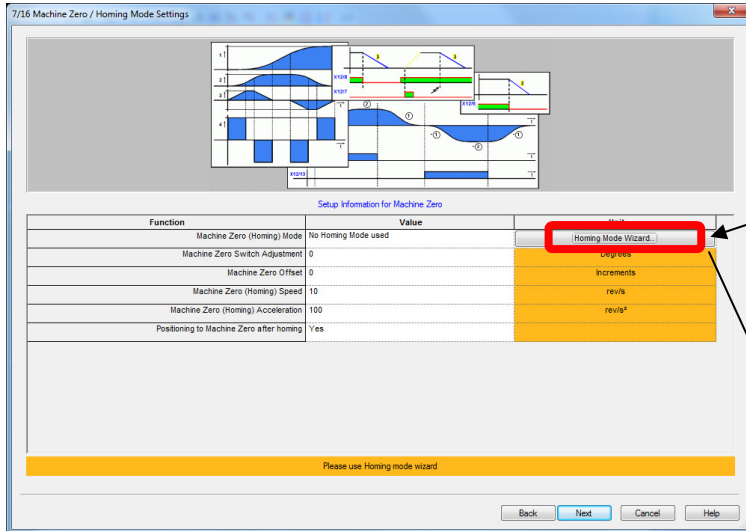
? degré ?
 incr. ? ? grad°
? degrees mm ?

Enter Data for Reference System

Function	Value	Unit
Unit of Travel	Increments	
Travel distance per revolution	8000	
Travel distance per revolution - Denominator	1	
Invert Motor Rotation / Direction Sense	<input type="checkbox"/>	
"Position Reset" Distance	0	OFF
"Position Reset" Distance - Denominator	0	

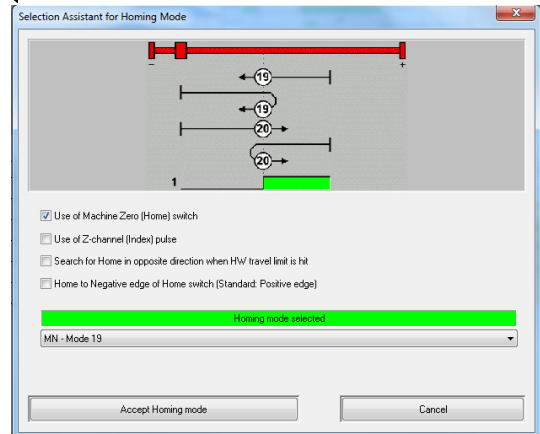
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Step 7: Machine Zero / Homing

- Set drive Homing Mode
- Use Homing Mode Wizard to select different options:
 - Z-pulse/encoder reference
 - Home sensor
 - Limit sensor
 - HardStop
- PAC tells the Compax3 to start homing and the C3 tells the PAC when homing is complete
- Click "Next"



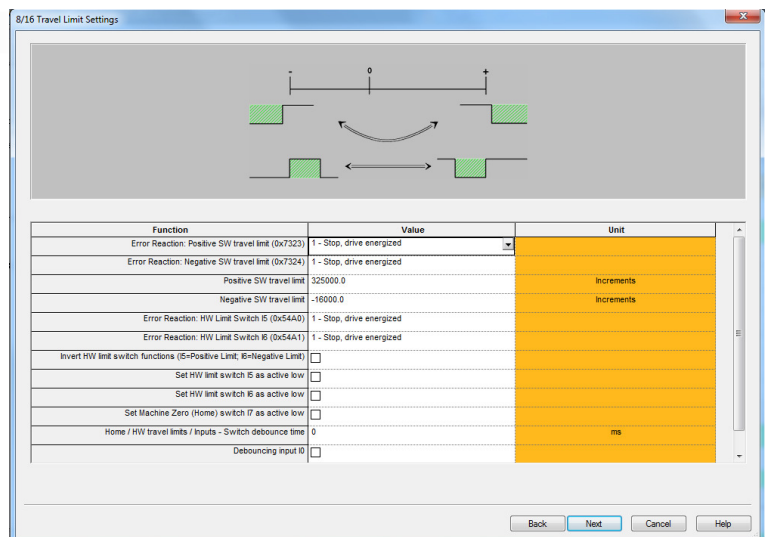
Step 8: Travel Limits / Settings

For rotary applications without limits

- ✓ Positive SW: 0 - No response
- ✓ Negative SW: 0 - No response
- ✓ Positive HW: 0 - No response
- ✓ Negative HW: 0 - No response
- ✓ All boxes unchecked

For axis with limits

- ✓ Positive SW: 0 - No response
- ✓ Negative SW: 0 - No response
- ✓ Set soft limits in PAC
- ✓ Positive HW: 1 - Stop, energized
- ✓ Negative HW: 1 - Stop, energized
- ✓ PNP NC: Set active low is unchecked
- ✓ NPN NC: Set active low checked (Requires 4.7k pulldown resistor)
- Click "Next"

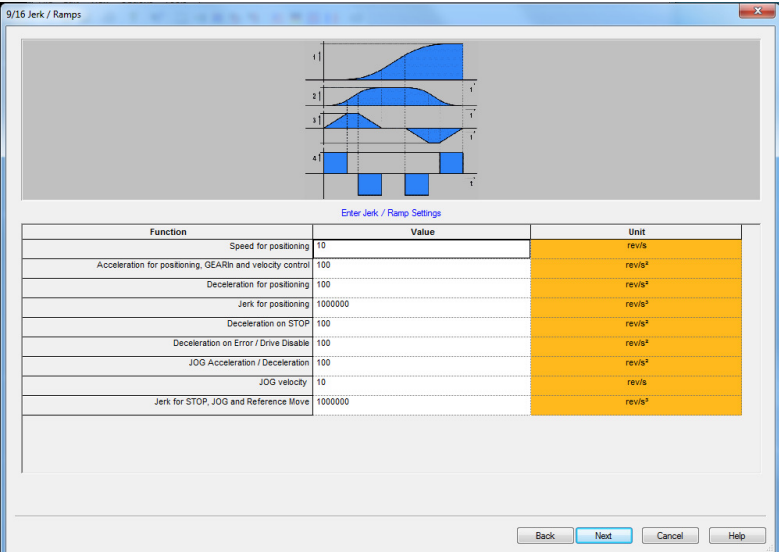


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Step 9: Jerk / Ramps

- No changes required, leave as default
- PAC controls these values
- Click "Next"

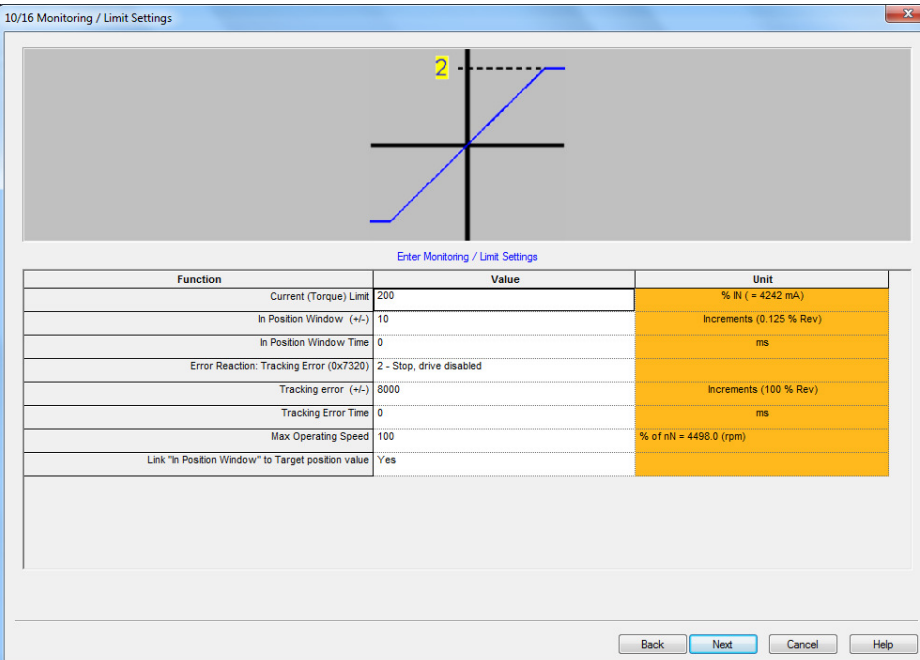


Function	Value	Unit
Speed for positioning	10	rev/s
Acceleration for positioning, GEARn and velocity control	100	rev/s ²
Deceleration for positioning	100	rev/s ²
Jerk for positioning	1000000	rev/s ³
Deceleration on STOP	100	rev/s ²
Deceleration on Error / Drive Disable	100	rev/s ²
JOG Acceleration / Deceleration	100	rev/s ²
JOG velocity	10	rev/s
Jerk for STOP, JOG and Reference Move	1000000	rev/s ³

Buttons: Back, Next, Cancel, Help

Step 10: Monitoring / Limit Settings

- Current Limit: Select as a percentage of motor continuous
- Set Tracking Error – Set value
 - Set in increments
 - Suggested value: 1 rev or 25mm
- Other values as default settings
- Click "Next"

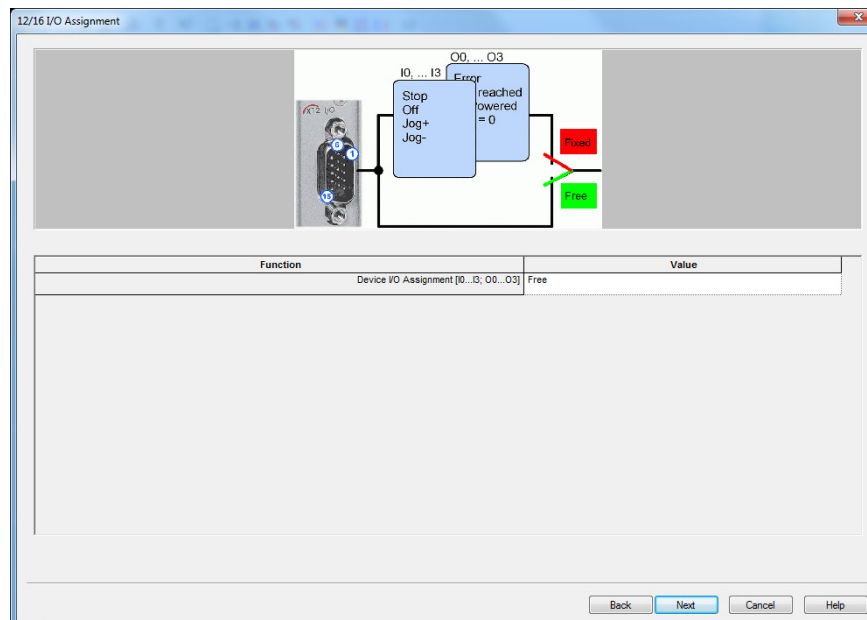


Function	Value	Unit
Current (Torque) Limit	200	% IN (= 4242 mA)
In Position Window (+/-)	10	Increments (0.125 % Rev)
In Position Window Time	0	ms
Error Reaction: Tracking Error (0x7320)	2 - Stop, drive disabled	
Tracking error (+/-)	8000	Increments (100 % Rev)
Tracking Error Time	0	ms
Max Operating Speed	100	% of nN = 4498.0 (rpm)
Link "In Position Window" to Target position value	Yes	

Buttons: Back, Next, Cancel, Help

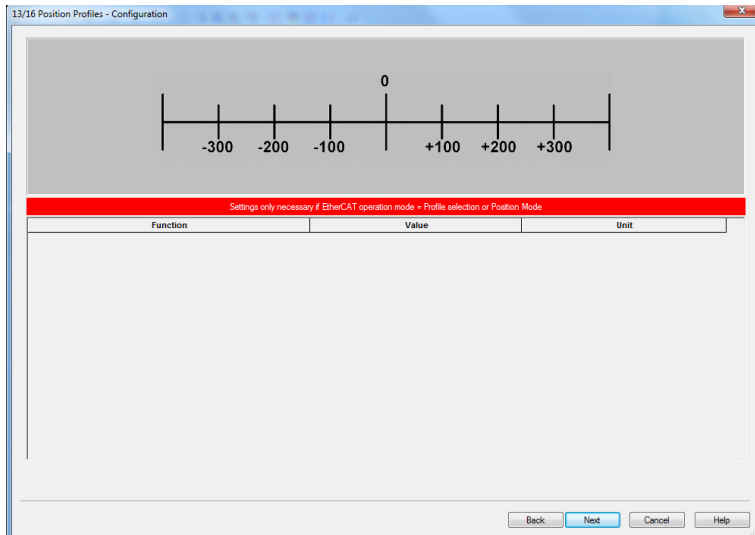
- **This can be left in the default state.**
 - ✓ **Select “ON” if you want to send out the motor encoder through the X11 connector on the Compax3**
- **The EtherCAT Cable automatically sends the encoder/resolver position to the PAC.**

- **Make sure the I/O assignment is select “Free”**
 - ✓ This gives the PAC control over all I/O.
- **Click “Next”**



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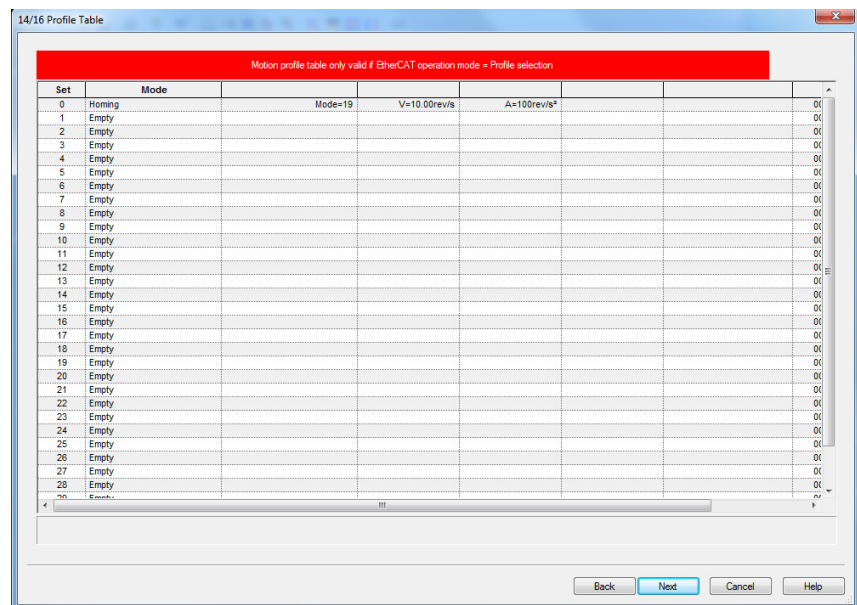


Step 13: Position Profiles - Configuration

- There is nothing to be done here.
- Click “Next”

Step 14: Profile Table

- This is where you would select the various profiles called up by a PLC or digital I/O.
- There is nothing to be done here because the PAC controls all positioning.
- Click “Next”

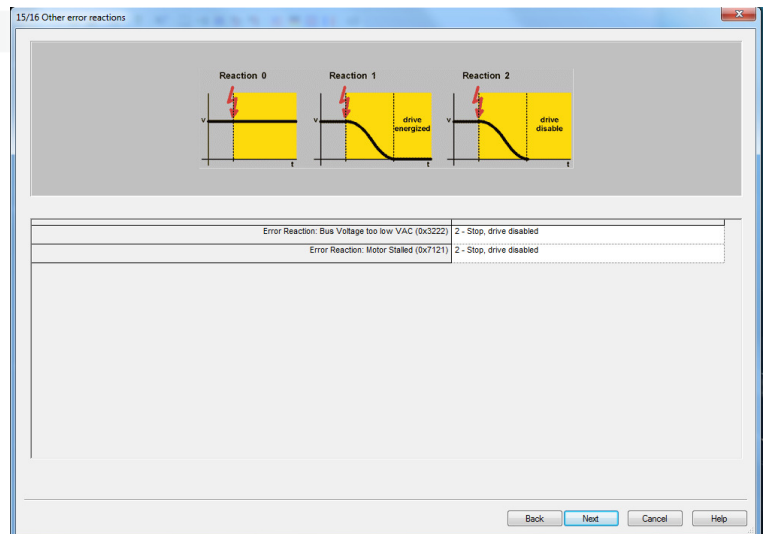


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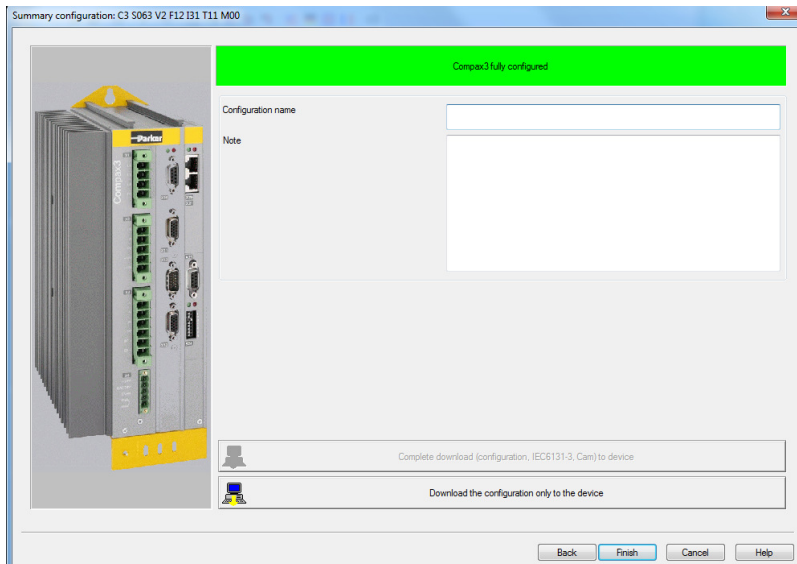
Step 15: Other Error Reactions

- Default settings are shown and recommend for most applications
- Highlight the field to reveal a pull-down to change the error reactions if needed
- Click “Next”



Summary Configuration: “Your Part Number”

- The Top Middle should be green; this means that the setup is done.
- You can name your configuration.
- You can add notes to your configuration.



You could download your configuration here, but we have to setup the EtherCAT. You will save time if you just click “finish”. This will bring you back to the main C3ServoManager Screen.

- Click “Finish”

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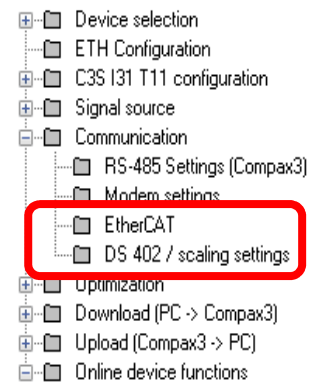
QuickStart

EtherCAT & DS402 Scaling settings

The EtherCAT portion of the setup is very simple.

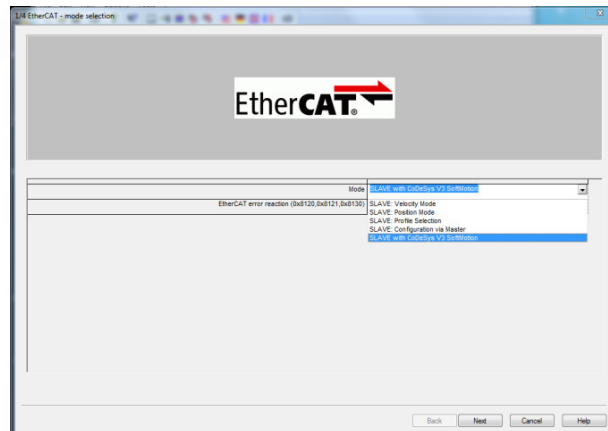
There are two steps:

- Set the EtherCAT Mode
- Set the DS402 scaling



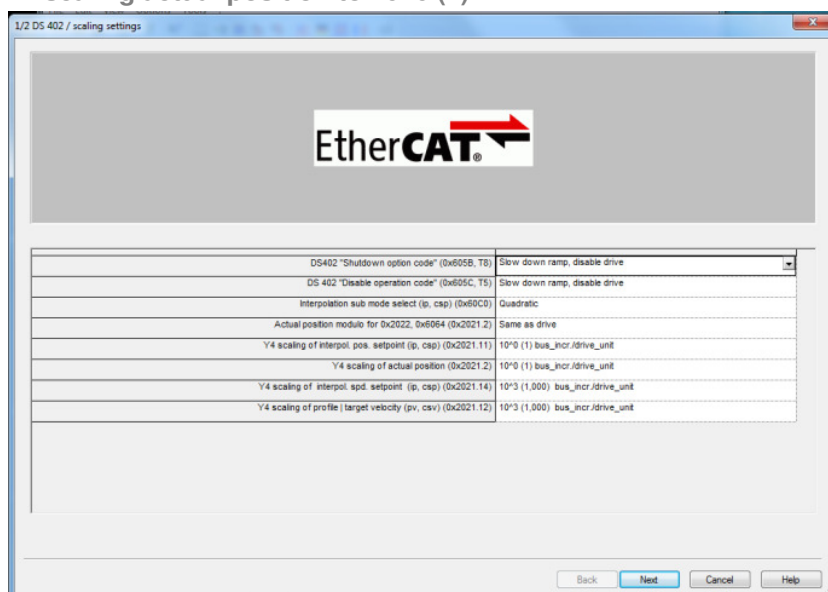
Communication > EtherCAT

- ✓ SLAVE with CoDeSys V3 SoftMotion



Communication > DS 402 / scaling setting

- ✓ Change the Y4 scaling interpol pos setpoint to 10^0 (1)
- ✓ Change the Y4 scaling actual position to 10^0 (1)

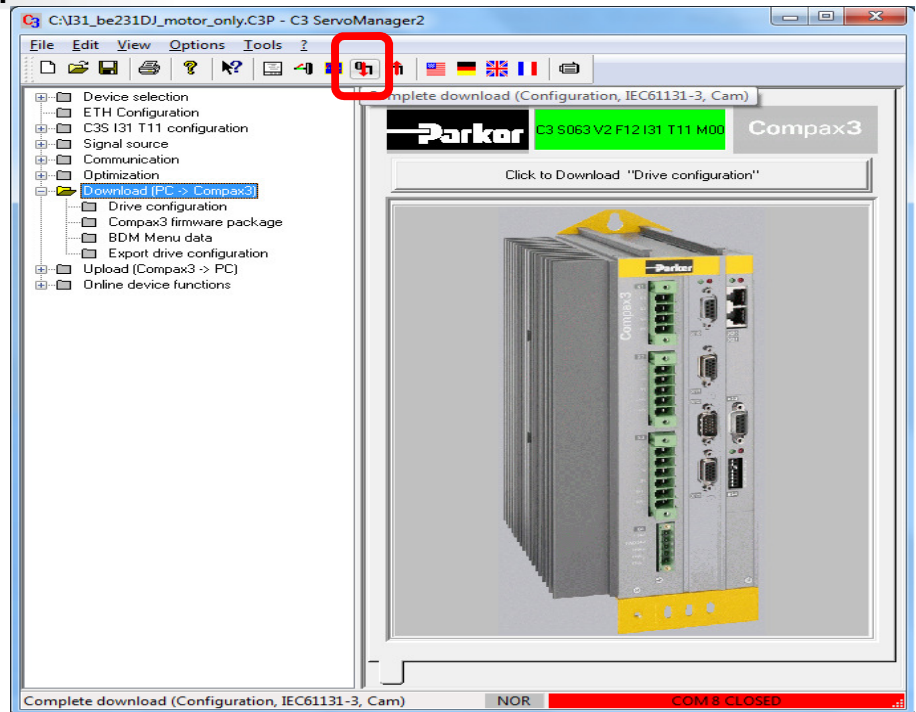


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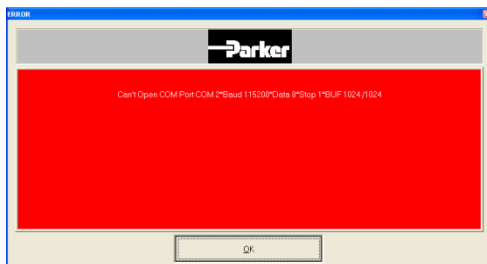
Download Drive configuration

Download PC > Compax3
or Red down arrow icon on
toolbar



Possible Errors

- **Problem 1:**
 - ✓ Red Error Screen, check to see if correct COM port is selected
 - Options : RS232/485 Com Port Settings



**FTDI chipset
inside**

- **Problem 2:**
 - ✓ **Can't Initiate Download:**
 1. Check to make sure 24volt power is on
 2. SSK1/02 cable is being used
 3. USB-RS232 adapter with FTDI chipset required.
Cables Unlimited USB2920 available on amazon.com
- **For more information:**
 - ✓ <http://www.parkermotion.com/support.htm>

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EtherCAT Connections

- S24 Address dipswitches on C3 are not used.
 - ✓ PAC auto addresses EtherCAT slaves based on order they're connected.
 - ✓ PAC IDE application needs to match this order. This is set when the EtherCAT scan is done (page 20).
- S24 lights will not start until the EtherCAT network is started.
- Ethernet cables can be standard or patch type.
 - ✓ Do not use switches or hubs on the EtherCAT network.

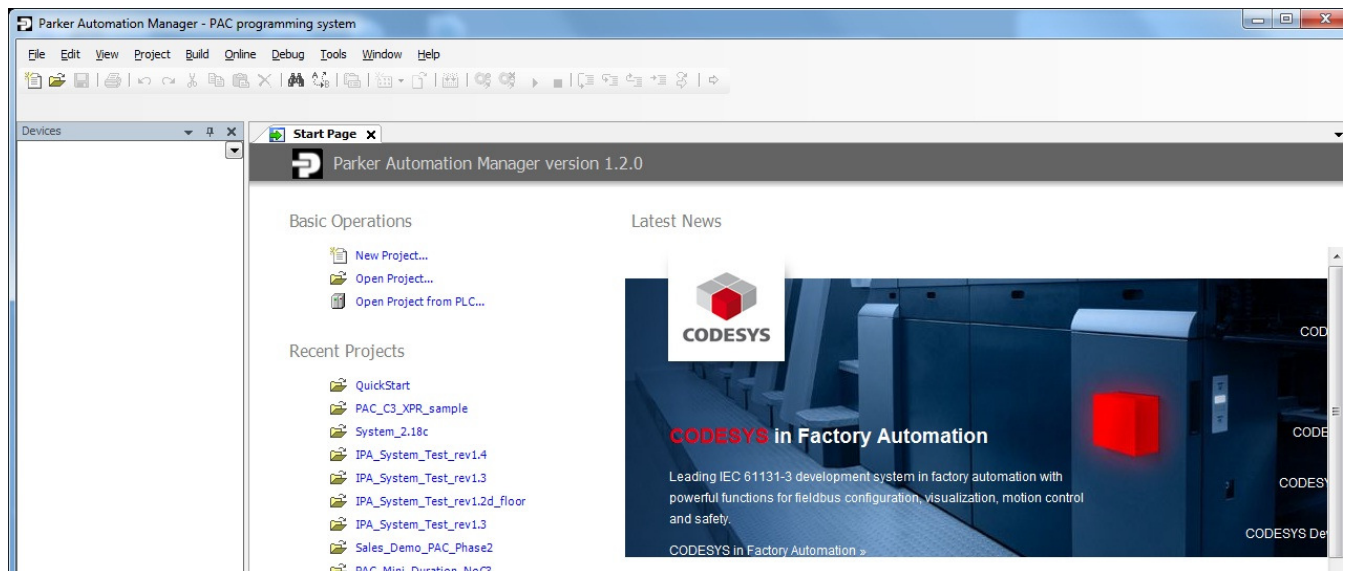


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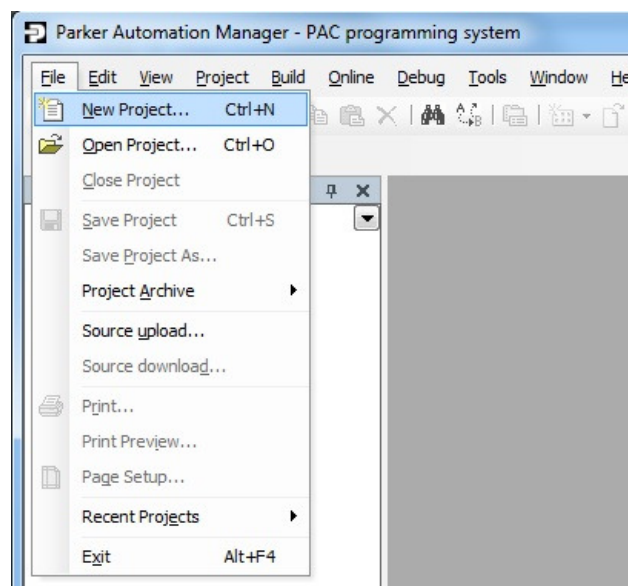
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Launch PAC software

- Start Parker Automation Controller Integrated Developer Environment (IDE)



- Click New Project... or go to File > New Project

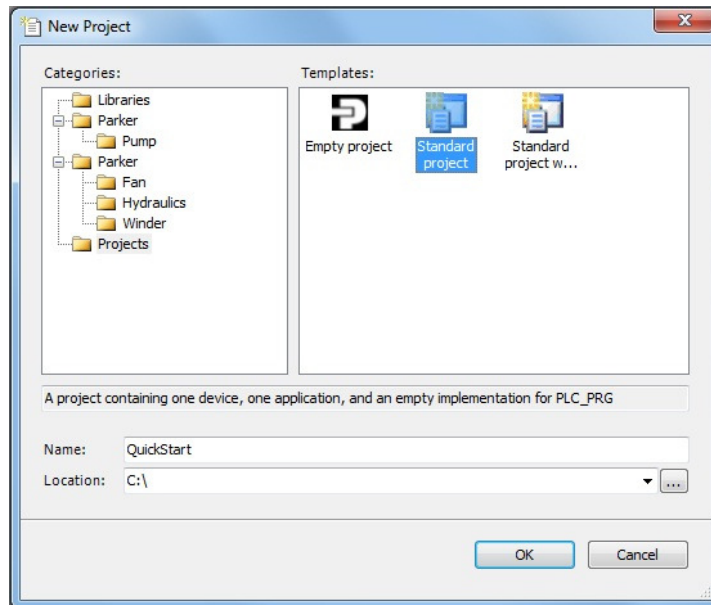


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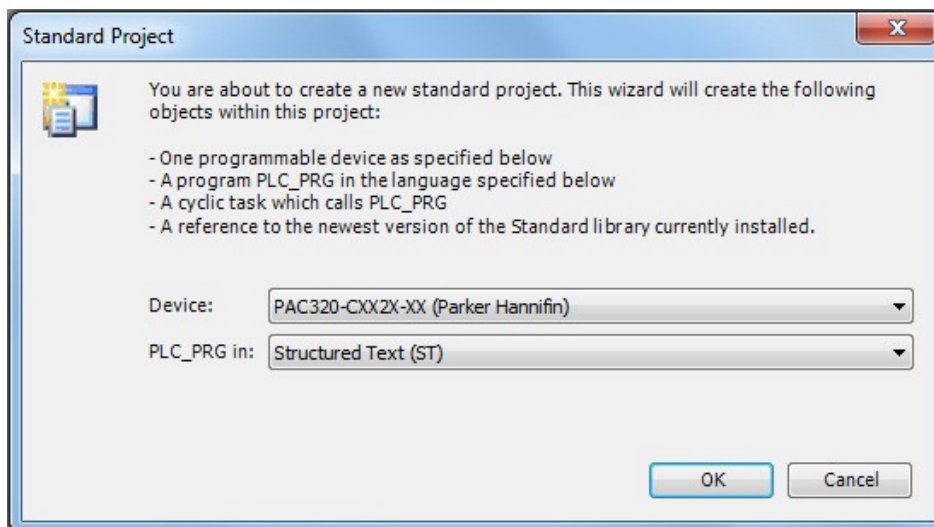
Start a Standard Project

- Select Standard project, name the project and set location



- Change Device to PAC320-?xx2x-xx(Parker Hannifin)

? is C, M or P based on your model number (on side of PAC320)
The PLC_PRG language type can be left as Structured Text (ST)

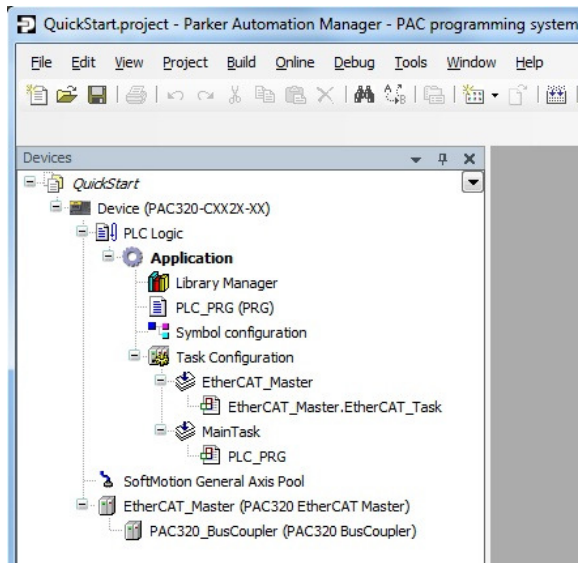


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Connecting to PAC

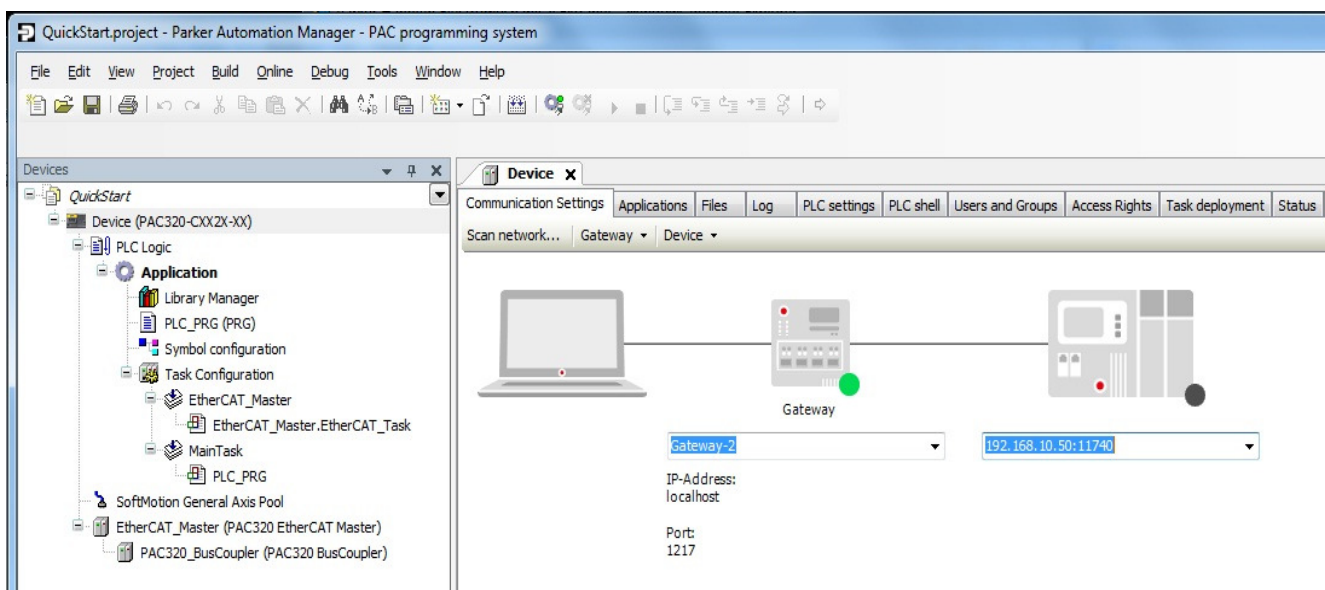
- Now there's Device, Application, EtherCAT_Master and PAC320_BusCoupler.



- In Devices window, Double-click on Device (PAC320-?xx2x-xx).

To view Devices, Goto: View > Devices

Under the controller, **Type: 192.168.10.50** and press enter.

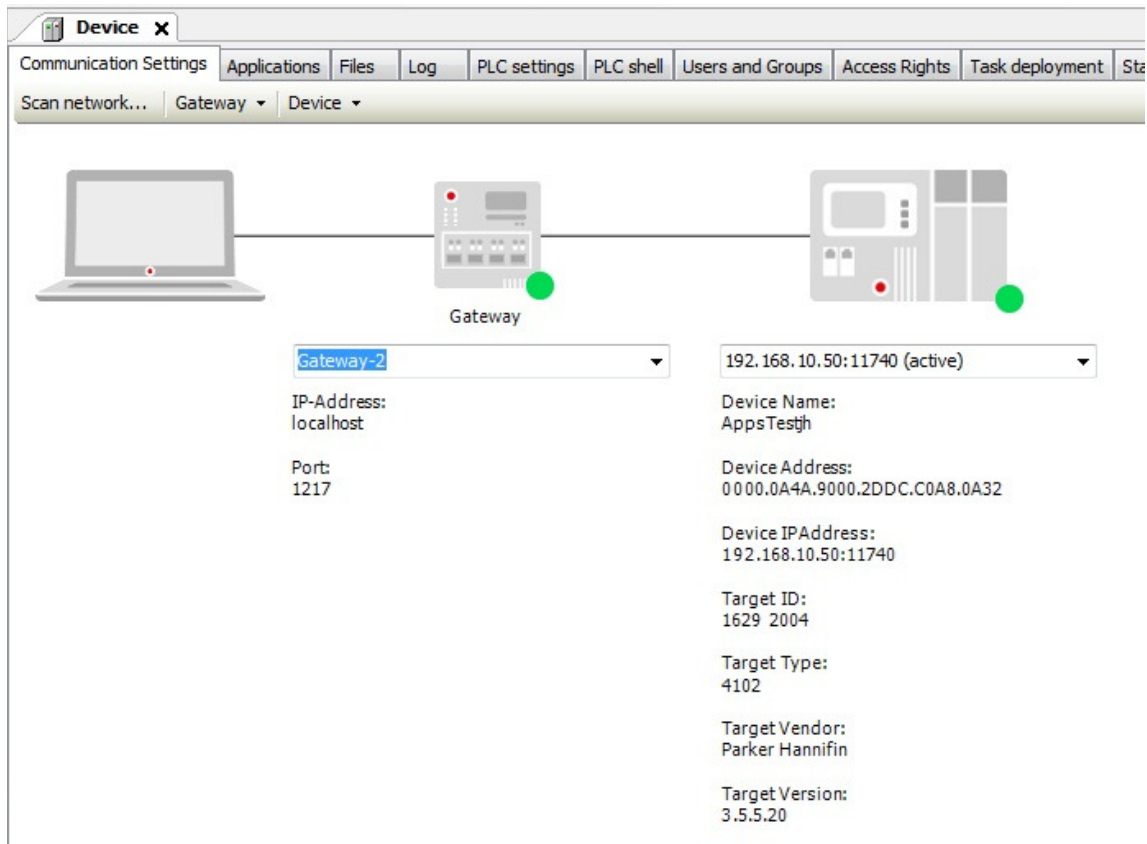


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Connecting to PAC

- The green light on the PAC icon indicates connected.



Problems connecting?

- Make sure your PC's ip address is set to 192.168.10.x where x is something other than 50
THE SUBNET HAS TO BE 255.255.0.0
- The PC should be connected to the PAC's X2 Ethernet port.

PAC supports both straight and patch cat5 cables.

For how to set your PC's Ethernet IP address:

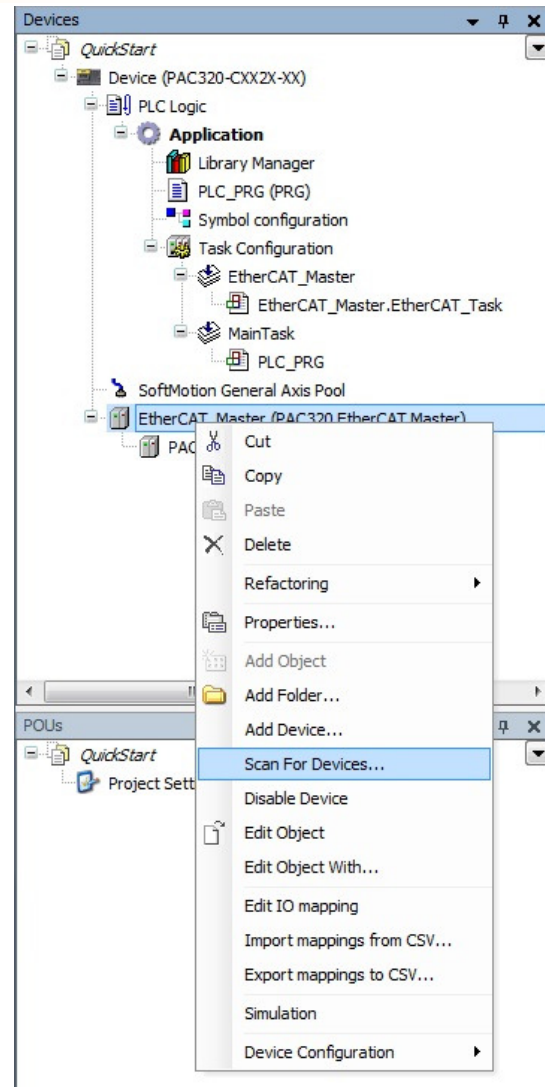
- ✓ <http://www.parkermotion.com/support.htm>

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Discover EtherCAT devices

- Right-click on EtherCAT_Master
- Click Scan For Devices...
- This will auto-detect the PACIO modules and any other EtherCAT devices.

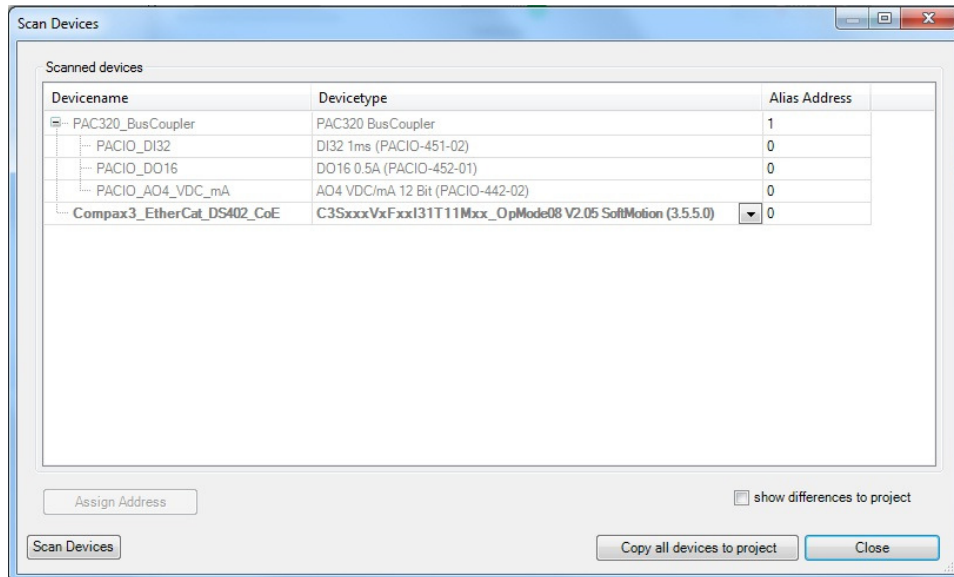


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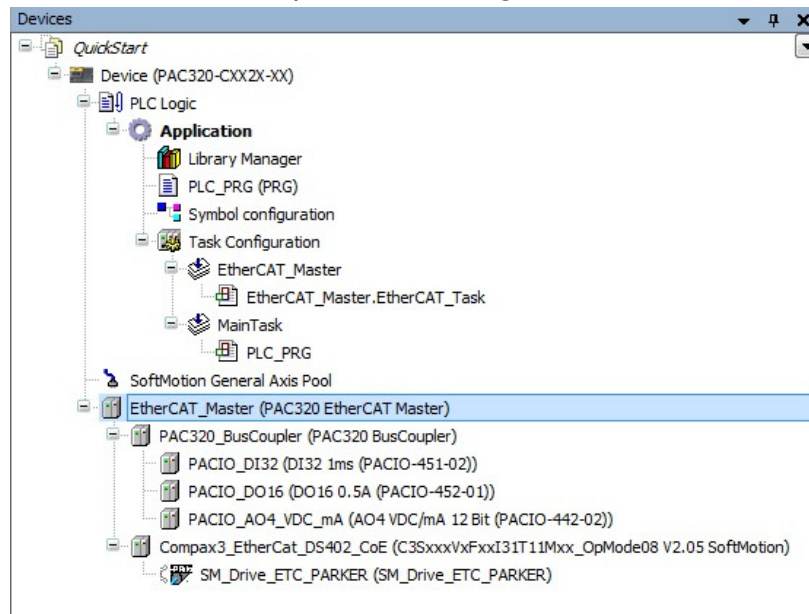
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Discover EtherCAT devices

- Scanned Devices appear.
- Click Copy all devices to project.



- Devices window will update showing the EtherCAT devices:



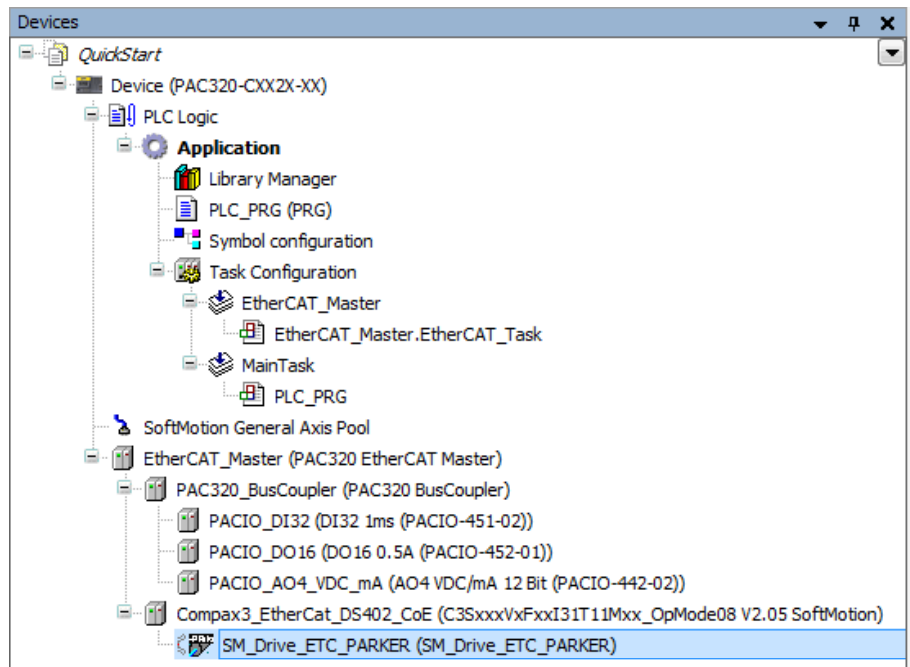
- PAC320-P users can skip to page 35

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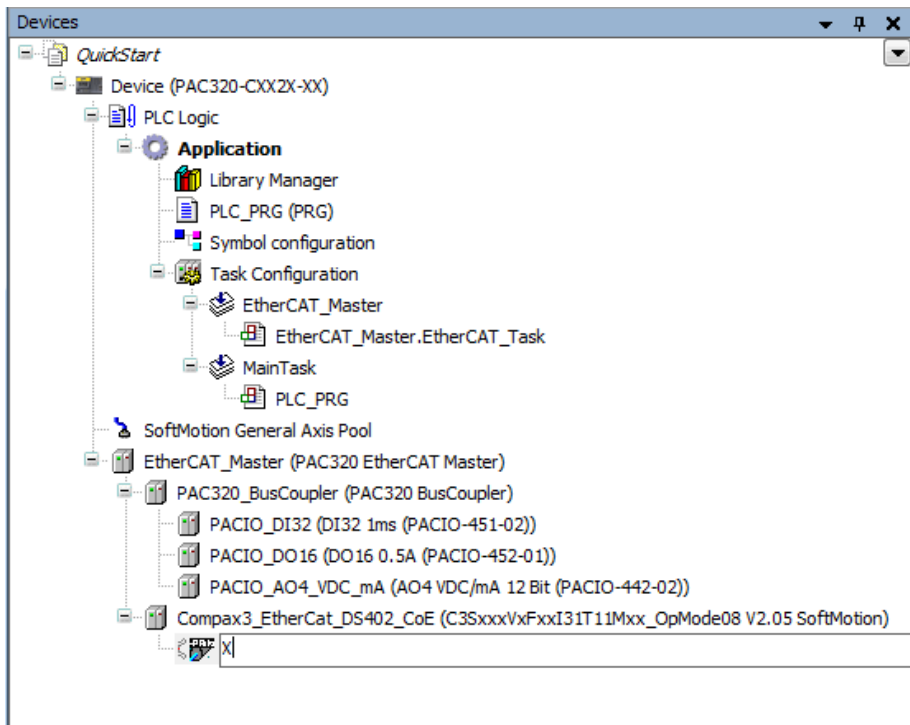
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Rename SoftMotion axis

- Change the SM_Drive by clicking to highlight the name. Then click SM_Drive again... (Double click will open the SoftMotion tabs.)



...and rename it X

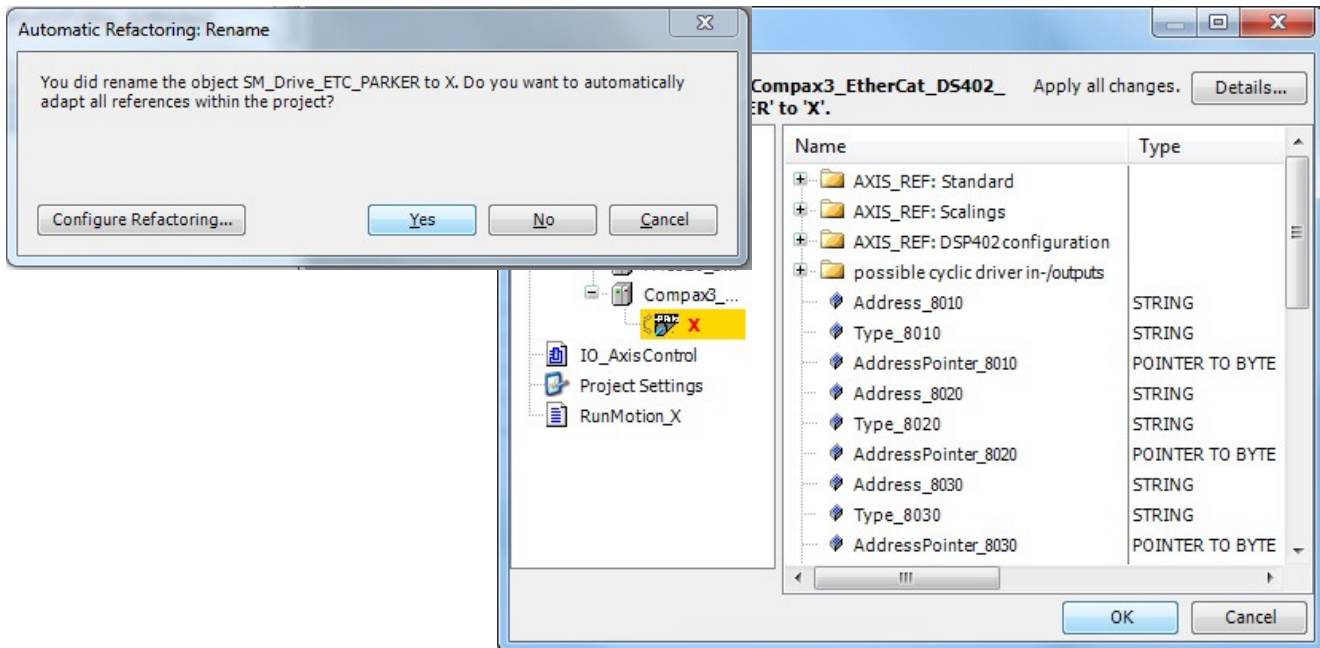


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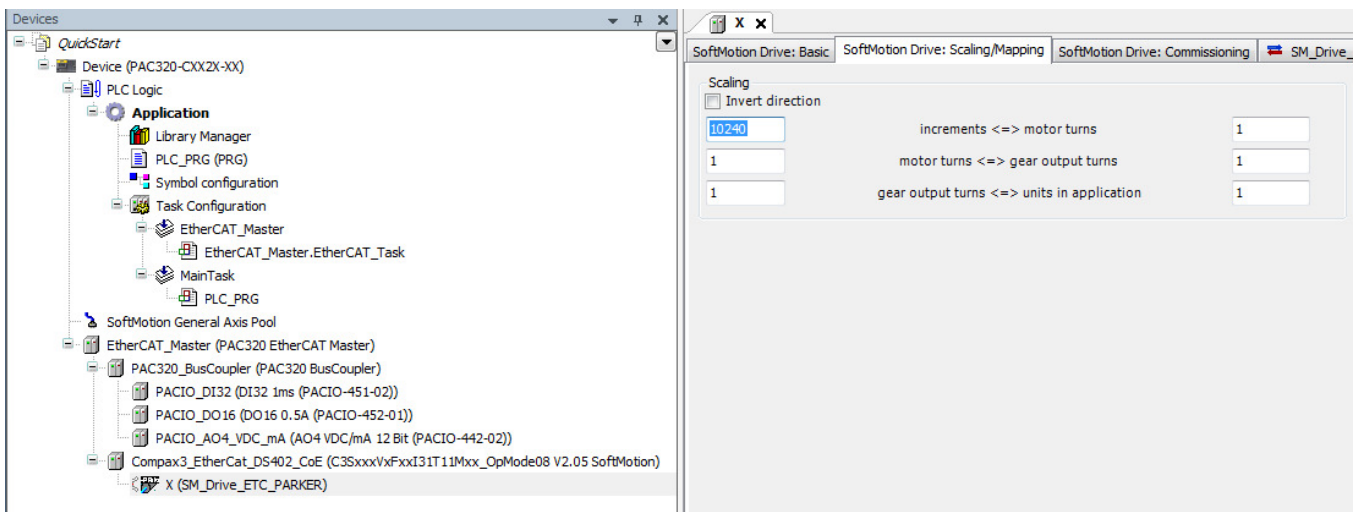
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Rename Axis & Set Scaling

- This will trigger a refactoring. Click Yes and OK.



- Double-Click on X, then SoftMotion Drive: Scaling/Mapping tab
- Change the scaling to the motor's resolution.
- This will set distance motor revs. Set mechanics scaling (optional, next 8 pages).



Parker Motors & Mechanics

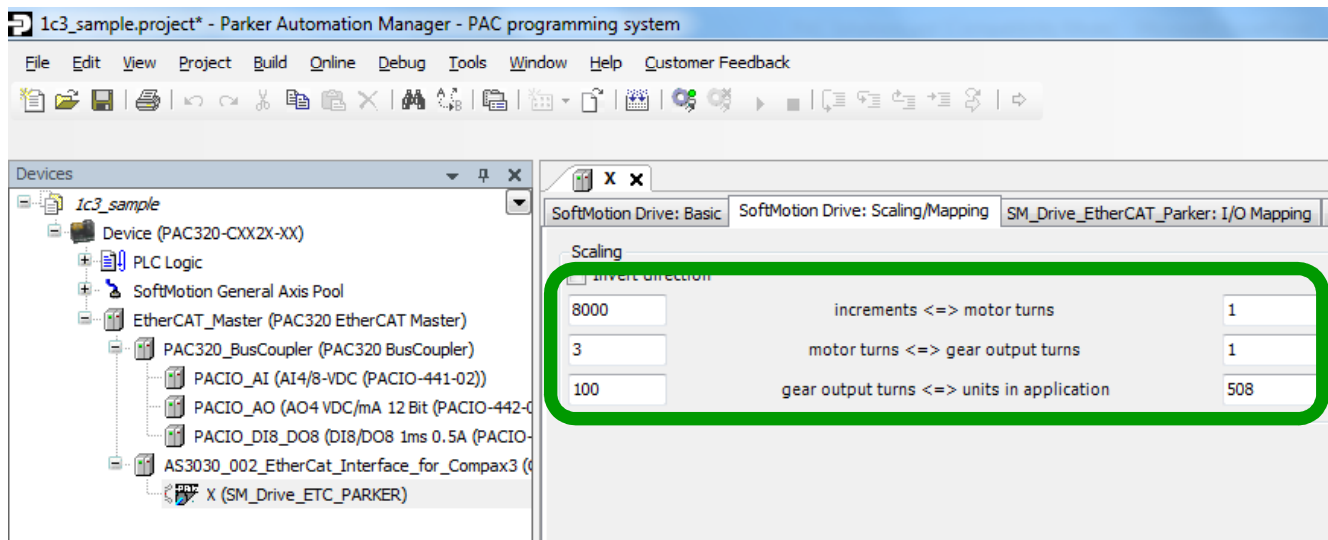
The PAC allows users to program moves in user units.

Scaling for each axis is located on the SoftMotion Drive: Scaling/Mapping tab.

Scaling is set by 3 steps:

1. Defining the motor's feedback resolution/increments.
2. Input the gearhead ratio
3. Input the ratio for application units (numerator & denominator).

Parker motors are offered with a wide range of feedback types and resolutions. Gearheads and linear actuators & stages are offered a wide range of leads and ratios. The order codes and the actual leads are listed on the next few pages for reference.



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Parker Mechanics

Parker Rotary Motors

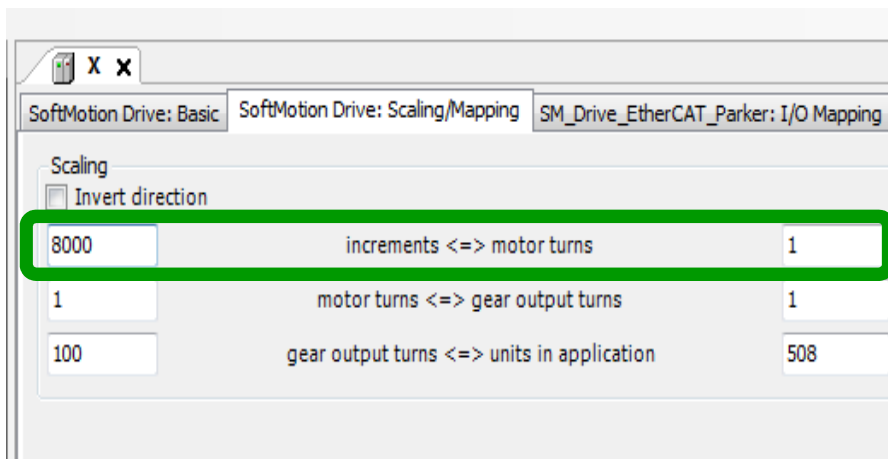
Step 1.

Set the increments per motor turn.

The drive should be set the same.

Parker motor part number's order code designates this and is shown on the right.

Below is set for a BE motor with J encoder 8000ppr.



Series	Order Code	Feedback resolution
MPE	4E	10000
	X	custom
MPP MPJ MPW	1E	8000
	41	4096
	6S	32768
	9S	32768
	7D or 8D	524288
	X	custom
BE	J	8000
	R	4096
	L	20000
	X	custom
SM	E	4000
	R	4096
	L	20000
	J	8000
	X	custom
N J	E	4000
	R	4096
	X	custom
MPM	G	4096
	JN	8000
	other	See catalog
SMN	2S	8192
	41	4096
	5D	32768

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Parker Mechanics

Parker Gearheads

Step 2.

Set the motor turns per gear output turns.

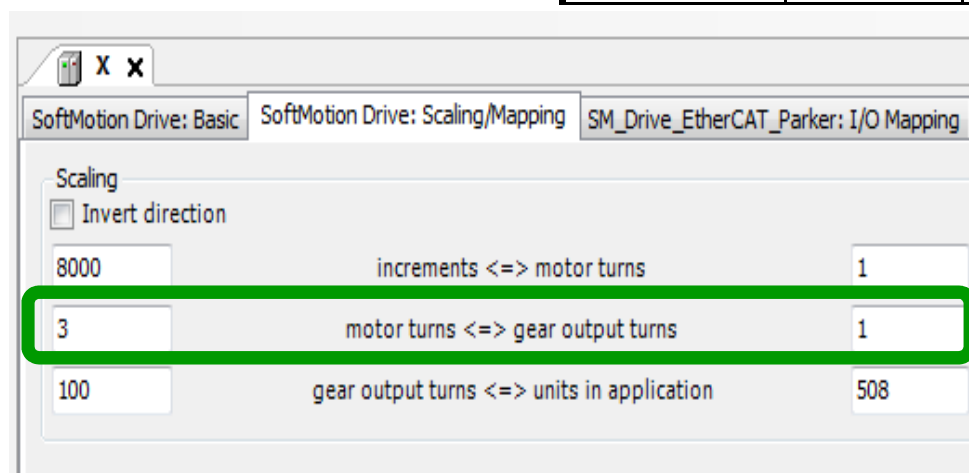
Parker gearhead part number's order code designates this and is shown on the right.

Parker gearheads are exact ratios. Thus the gear output turns will always be 1.

Below shows setting for a 3:1 gearhead.

If the system doesn't use a gearhead, leave this set to the default (1:1).

Series	Order Code	Gear Ratio (exact)
PS	001	1:1
PX	003	3:1
PV	004	4:1
RS	005	5:1
RX	007	7:1
PG/RA	008	8:1
NE/NR	010	10:1
	012	12:1
	015	15:1
	016	16:1
	020	20:1
	025	25:1
	030	30:1
	035	35:1
	040	40:1
	050	50:1
	070	70:1
	100	100:1



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Parker Mechanics

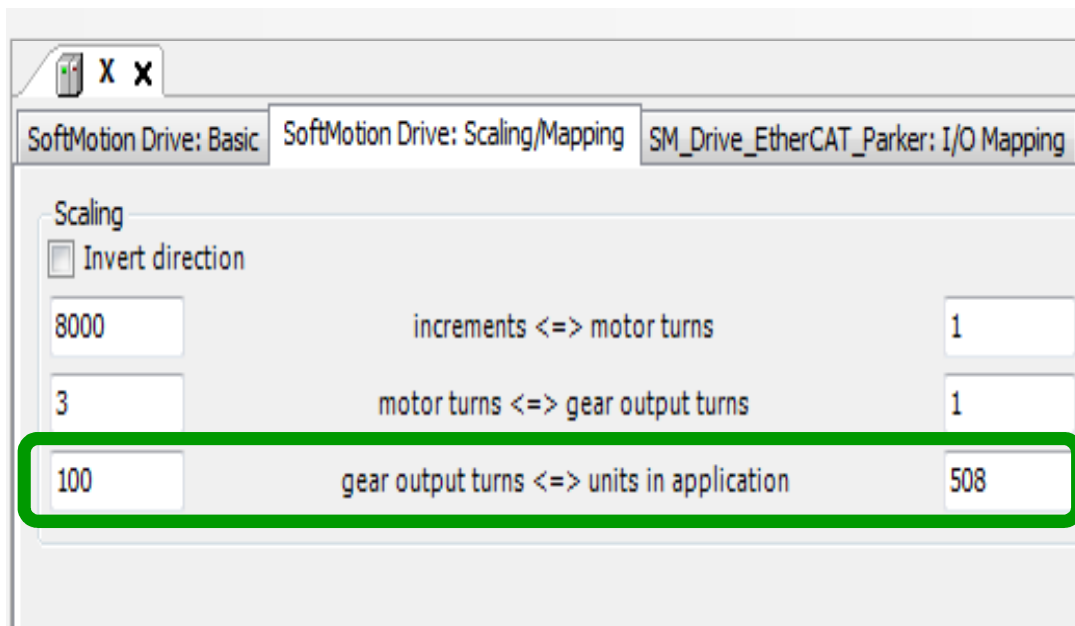
Parker Mechanics

Step 3.

Set the gear turns per application units.

Parker actuators & stage part number's order code designates this and are shown on the following pages as well as the ratios for both inches and millimeters.

As an example, below shows setting for a ET with B05 in millimeters.



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Parker Mechanics

Parker Mechanics

Series	Order Code	Lead	mm		in	
			denominator	numerator	denominator	numerator
HD	D02	5mm	1	5	254	50
	D03	10mm	1	10	254	100
	D04	20mm	1	20	254	200
	D07	40mm	1	40	254	400
XR, XE	D2	5mm	1	5	254	50
	D3	10mm	1	10	254	100
	D4	20mm	1	20	254	200
	D5	25mm	1	25	254	250
	D6	32mm	1	32	254	320
	D9	2mm	1	2	254	20
	D31	1mm	1	1	254	10
	D32	2mm	1	2	254	20
	D33	5mm	1	5	254	50
	D34	0.10 inch	100	254	10	1
	D35	0.10 inch	100	254	10	1
ET	A04	0.250 in	100	635	4	1
	A05	0.200 in	100	508	5	1
	A08	0.125 in	1000	3175	8	1
	B01	1.000 in	10	254	1	1
	B02	0.500 in	10	127	2	1
	B04	0.250 in	100	635	4	1
	B05	0.200 in	100	508	5	1
	B08	0.125 in	1000	3175	8	1
	B53	1.875 in	1000	47625	8	15
	M05	5mm	1	5	254	50
	M10	10mm	1	10	254	100
	M20	20mm	1	20	254	200
	M50	50mm	1	50	254	500

Parker Automation Controller

Parker Mechanics

Parker Mechanics

Series	Order Code	Distance per rev	mm		in	
			denominator	numerator	denominator	numerator
LCR	BLT	44mm	1	44	254	440
	30	58mm	1	58	254	580
	LN02	2mm	1	2	254	20
	LN10	10mm	1	10	254	100
ETH	M05	5mm	1	5	254	50
	M10	10mm	1	10	254	100
	M16	16mm	1	16	254	160
	M20	20mm	1	20	254	200
	M32	32mm	1	32	254	320

Parker Automation Controller

Parker Mechanics

Parker Mechanics

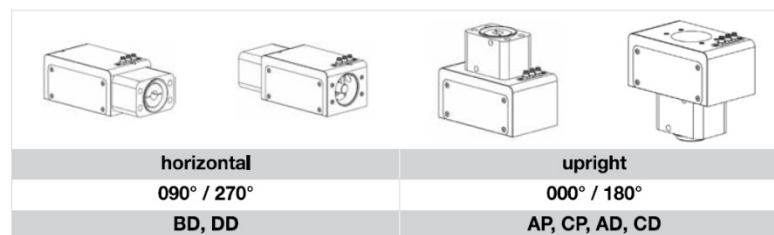
OSPE Series	Order Code	Distance per rev	mm		in	
			denominator	numerator	denominator	numerator
BHD	20	125mm	1	125	254	1250
	25	180mm	1	180	254	1800
	32	240mm	1	240	254	2400
	50	350mm	1	350	254	3500
B	25	60mm	1	60	254	600
	32	60mm	1	60	254	600
	50	100mm	1	100	254	1000
SB	25..3	5mm	1	5	254	50
	25..4	10mm	1	10	254	100
	32..4	10mm	1	10	254	100
	25..5	25mm	1	25	254	250
	32..5	25mm	1	25	254	250
	50..5	25mm	1	25	254	250
ST	25	4mm	1	4	254	40
	32	4mm	1	4	254	40
	50	6mm	1	6	254	60
BV	20	108mm	1	108	254	1080
	25	160mm	1	160	254	1600

Parker Automation Controller

Parker Mechanics

Parker Mechanics

HMR	Order Code	Distance per rev	mm		in	
			denominator	numerator	denominator	numerator
S Ball Screw Drive	05	5 mm	1	5	254	50
	10	10 mm	1	10	254	100
	12	12 mm	1	12	254	120
	16	16 mm	1	16	254	160
	20	20 mm	1	20	254	200
	25	25 mm	1	25	254	250
	32	32 mm	1	32	254	320
B Belt Drive	08	66 mm	1	66	254	660
	11	90 mm	1	90	254	900
	15 BD or DD	100 mm	1	100	254	1000
	15 AP/CP/AD/CD	125 mm	1	125	254	1250
	18 BD or DD	130 mm	1	130	254	1300
	18 AP/CP/AD/CD	150 mm	1	150	254	1500
	24 BD or DD	160 mm	1	160	254	1600
	24 AP/CP/AD/CD	224 mm	1	224	254	2240

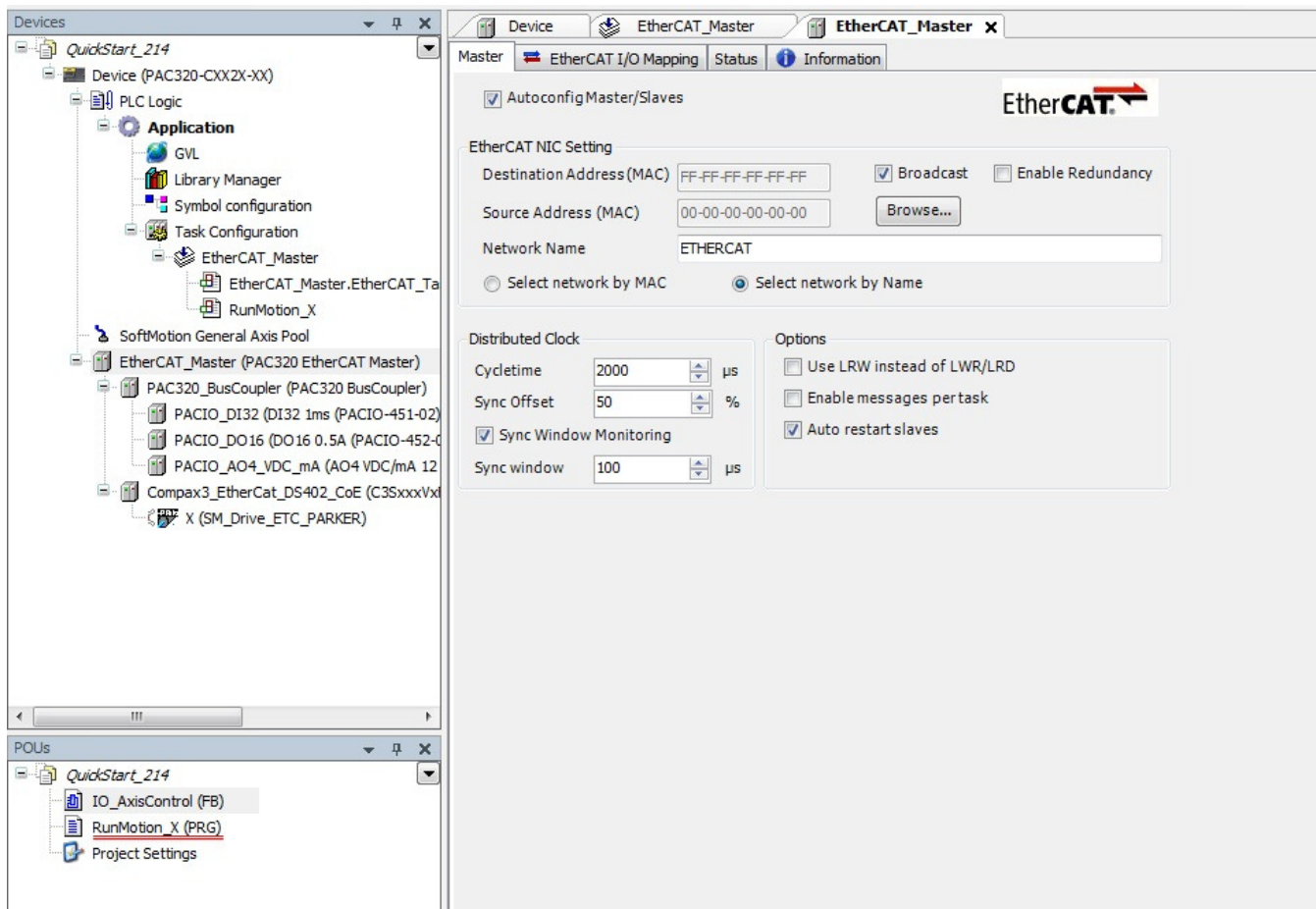


Parker Automation Controller

QuickStart

Set EtherCAT_Master Distributed Clock

- Double-click on EtherCAT_Master (PAC320 EtherCAT Master)
- Set Cycletime to 2000us (and press ENTER)
- Set Sync Offset to 50%
- Enable Sync Window Monitoring and set to 100us

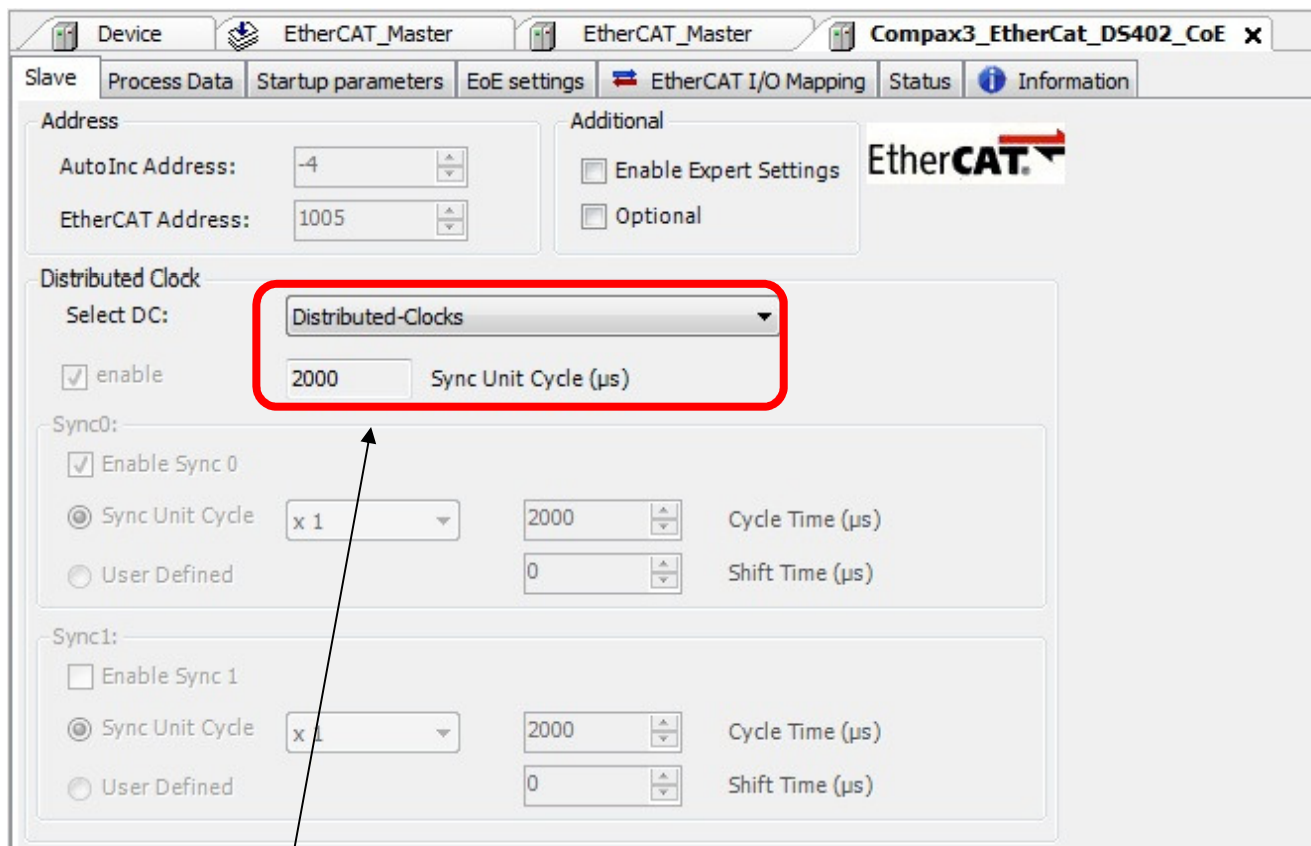
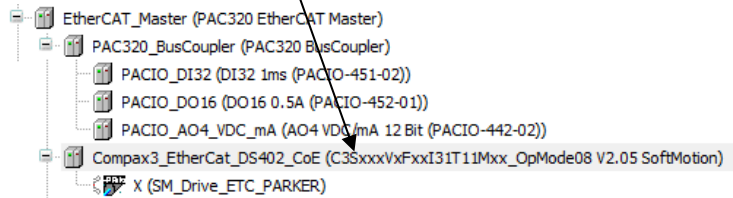


Parker Automation Controller

QuickStart

Compax3 EtherCAT settings

- Double-click on Compax3_EtherCAT_DS402_CoE
- This shows the slave settings for the Compax3.
- Do not need to change these.



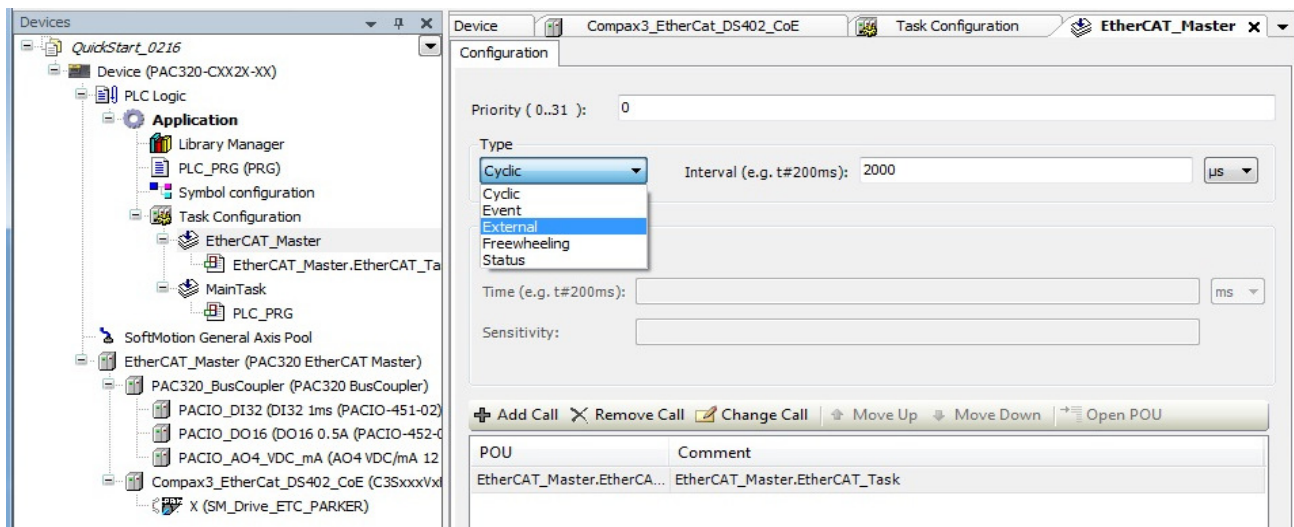
- This should match the DC setting from previous step.
- IF IT DOESN'T MATCH, REPEAT PREVIOUS STEP.

Parker Automation Controller

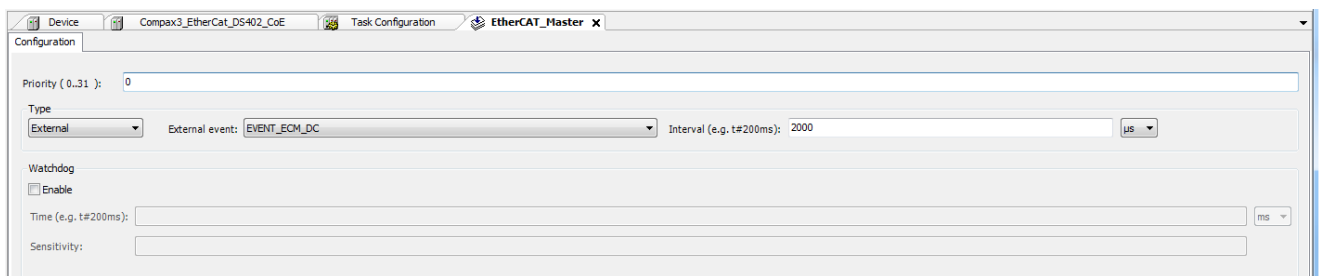
QuickStart

Set EtherCAT Master Task to External

- Under Task Configuration, double-click on EtherCAT_Master
- Change the Type from Cyclic to External
- Do not change interval
 - Interval should already match our EtherCAT Master setting of 2000us
 - If not, go to EtherCAT_Master device setting (page 32)



- The External Event will be EVEN_ECM_DC which is the Distributed Clock.
- It should look like this:



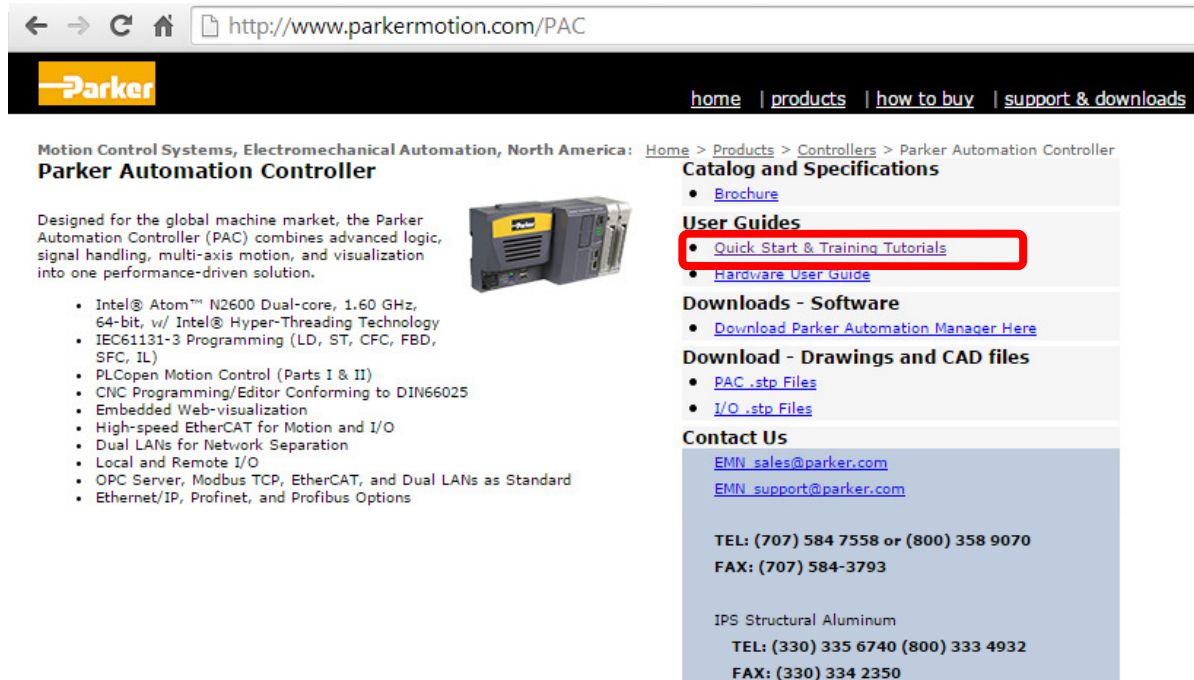
- Delete PLC_PRG from application and MainTask

Parker Automation Controller

QuickStart

Download & Import Sample Program

- Download sample program export
[http:// www.parkermotion.com/PAC](http://www.parkermotion.com/PAC)



Motion Control Systems, Electromechanical Automation, North America: [Home](#) > [Products](#) > [Controllers](#) > Parker Automation Controller

Parker Automation Controller

Designed for the global machine market, the Parker Automation Controller (PAC) combines advanced logic, signal handling, multi-axis motion, and visualization into one performance-driven solution.

- Intel® Atom™ N2600 Dual-core, 1.60 GHz, 64-bit, w/ Intel® Hyper-Threading Technology
- IEC61131-3 Programming (LD, ST, CFC, FBD, SFC, IL)
- PLCopen Motion Control (Parts I & II)
- CNC Programming/Editor Conforming to DIN66025
- Embedded Web-visualization
- High-speed EtherCAT for Motion and I/O
- Dual LANs for Network Separation
- Local and Remote I/O
- OPC Server, Modbus TCP, EtherCAT, and Dual LANs as Standard
- Ethernet/IP, Profinet, and Profibus Options

User Guides

- [Quick Start & Training Tutorials](#)
- [Hardware User Guide](#)

Downloads - Software

- [Download Parker Automation Manager Here](#)

Download - Drawings and CAD files

- [PAC .stp Files](#)
- [I/O .stp Files](#)

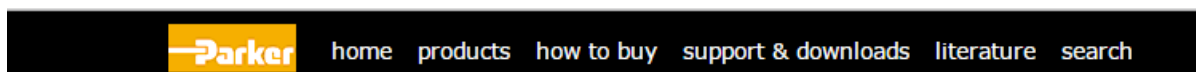
Contact Us

EMN_sales@parker.com
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TEL: (707) 584 7558 or (800) 358 9070
 FAX: (707) 584-3793

IPS Structural Aluminum
 TEL: (330) 335 6740 (800) 333 4932
 FAX: (330) 334 2350

- Download QuickStart sample programs (.zip) and unzip the .export files



[Parker Electromechanical Automation FAQ Site](#) » [PAC](#) » [Quick Start and Online Training Videos](#)

Quick Start and Online Training Videos

[QuickStart with Step-by-Step instructions \(.pdf\)](#)

[QuickStart sample programs \(.zip\)](#)

Demo program: [PAC + C3 + XPR2 \(click here to download .zip file\)](#)

This includes a sample program files for the Parker Automation Controller using the Parker

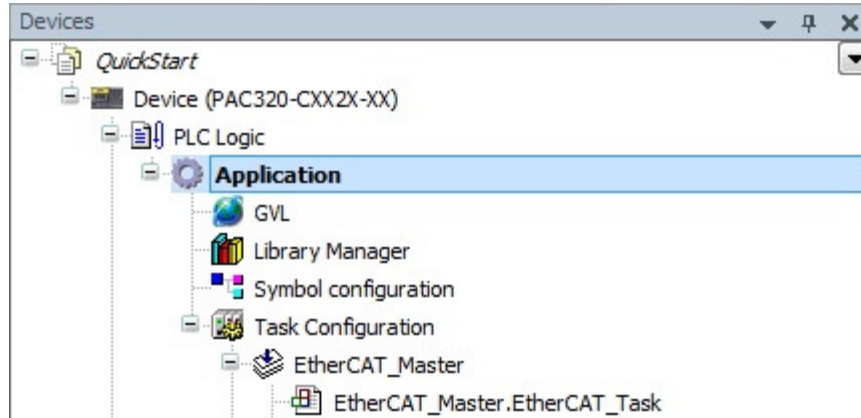


Parker Automation Controller

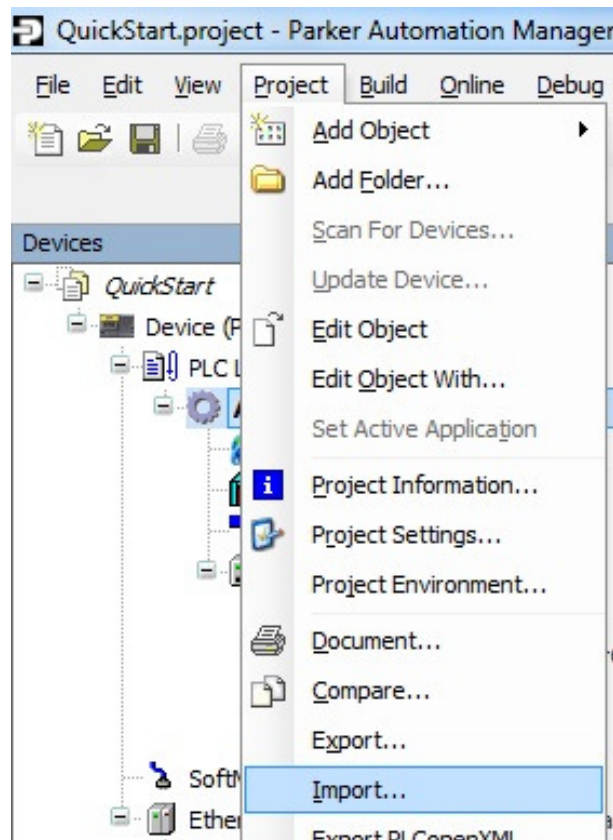
QuickStart

Download & Import Sample Program

- Click on Application



- Project > Import...



Parker Automation Controller

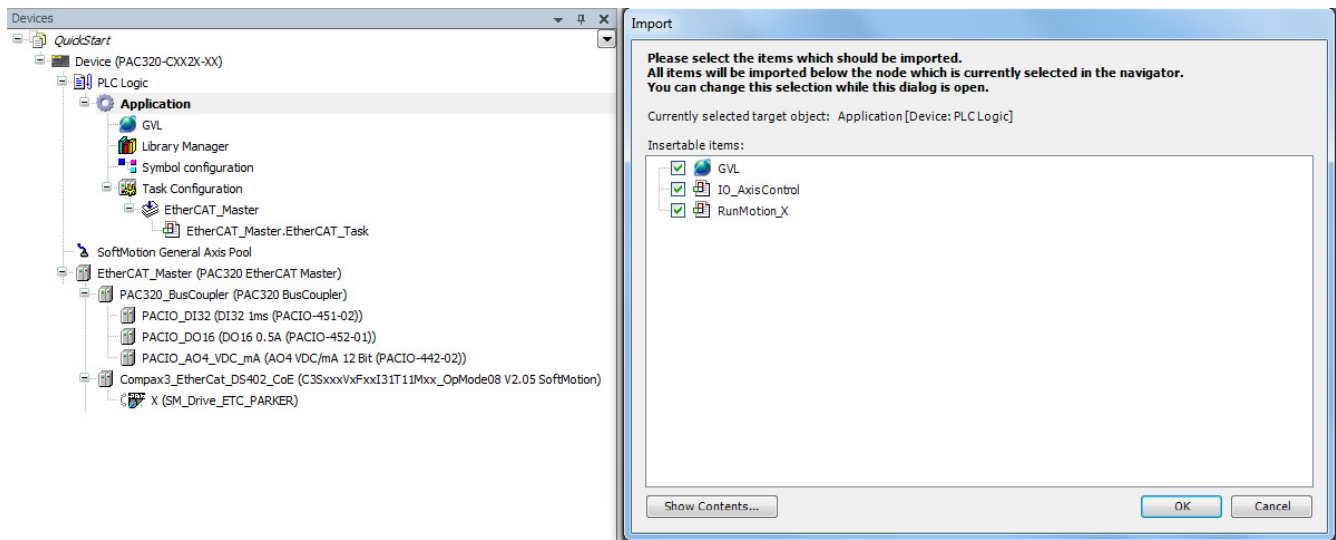
QuickStart

Download & Import Sample Program

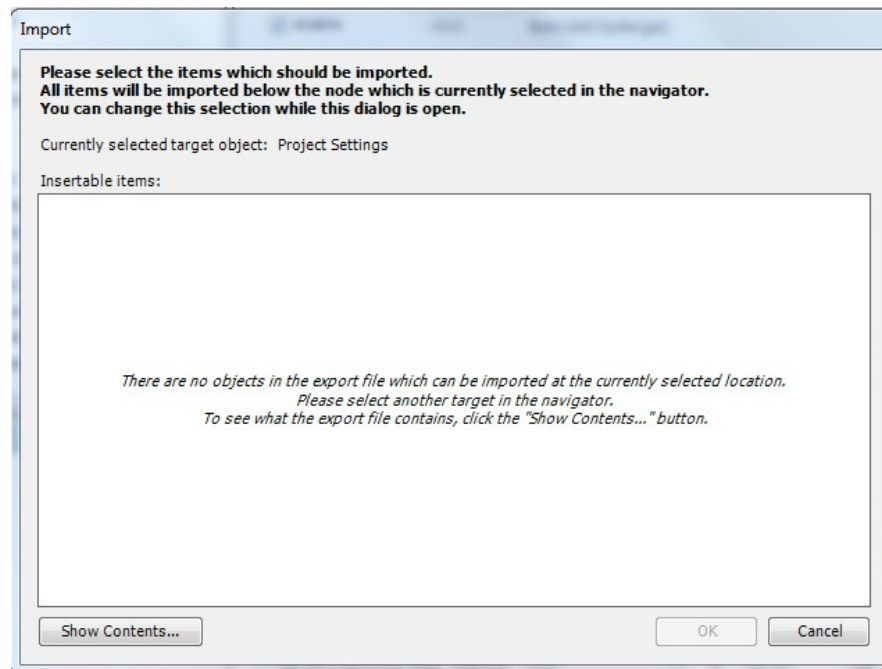
For the PAC320-M or PAC320-C, use RunMotion_X.external

For the PAC320-P, use Counter.external

- Click OK to import



- If you see this, click on Application and you should see above.

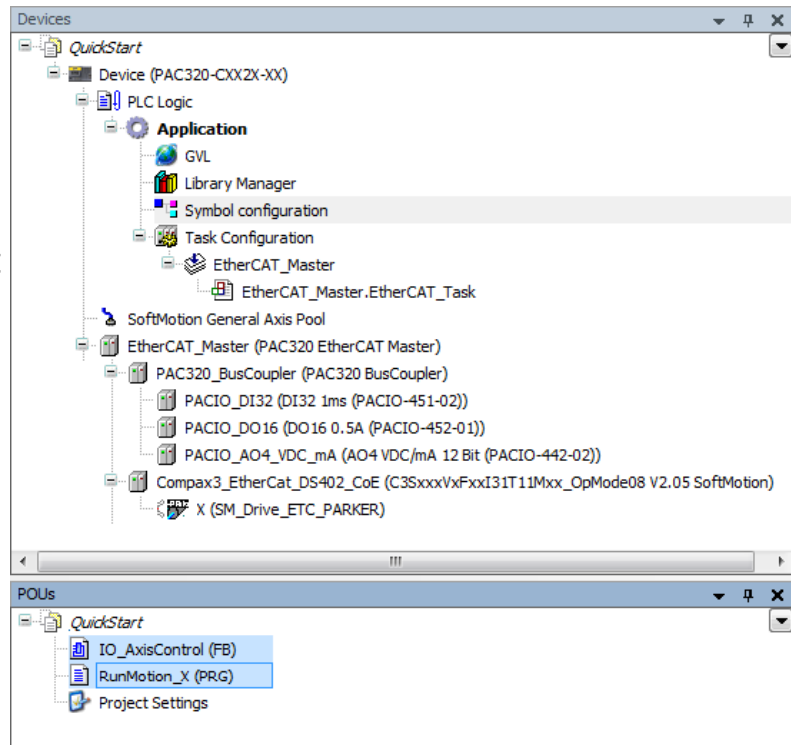


Parker Automation Controller

QuickStart

Organize Project

- Hold Ctrl key
- Select IO_AxisControl and RunMotion_X
- Drag them into POUs and drop them onto project name (QuickStart in this example)
- For the PAC320-P, drag Counter into QuickStart.



To keep projects clean as users develop POUs (programs, function blocks and functions) organize them in POUs.

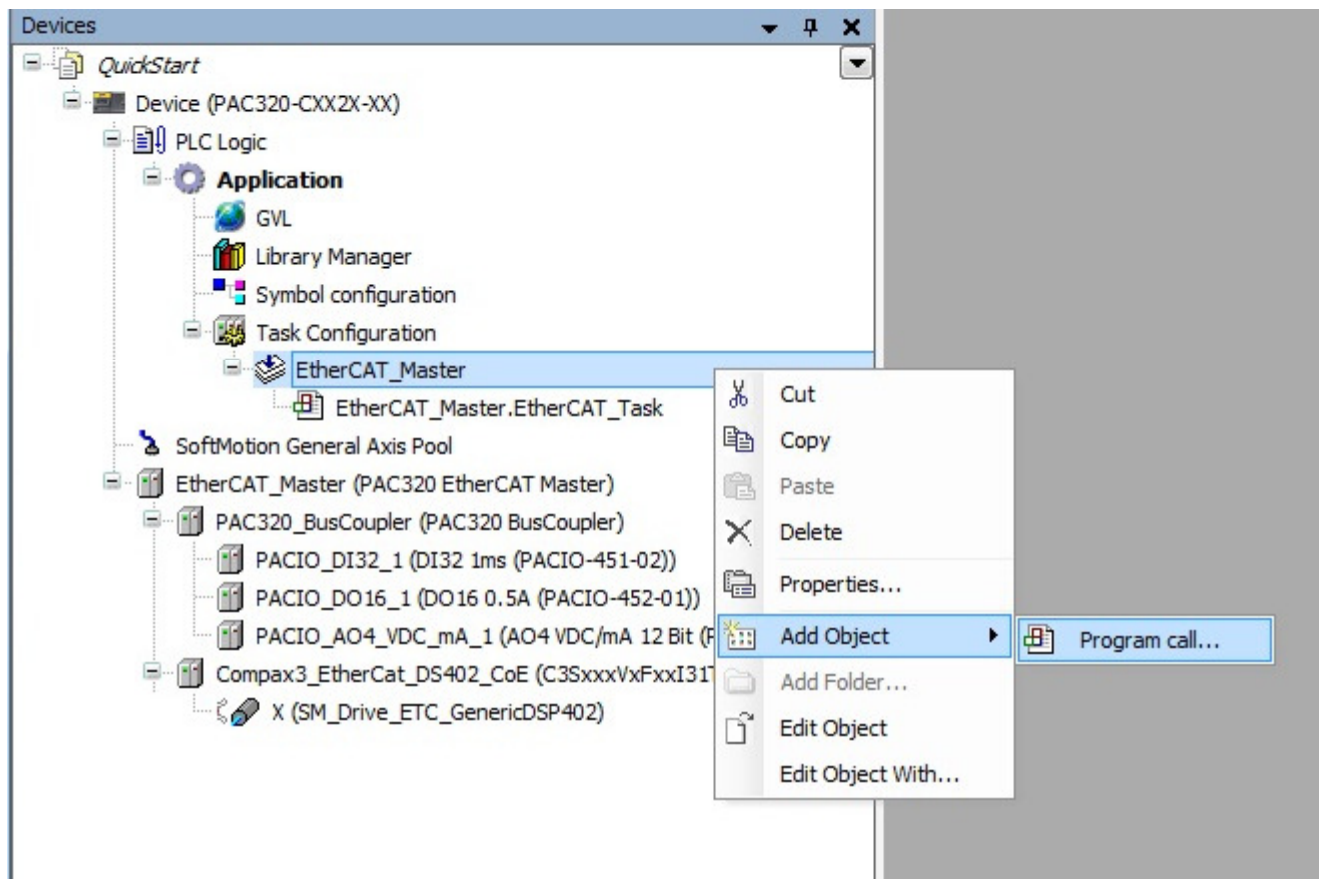
- This keeps from cluttering the Devices window.
- For applications with more than one device, allows ONE location to make changes, rather than having to maintain copies under each device.
- Folders can be created for grouping the parts of the program for different machine functions.
- External files can also be imported into POUs for drawings, ECOs/version control, documentation, etc.

Parker Automation Controller

QuickStart

Organize Project

- Motion must be in the EtherCAT task!!!
- Right-click on EtherCAT_Master
- Add Object > Program call...
- PAC320-C and PAC320-M users: Delete MainTask
- PAC320-P: Add Program call... in Main Task instead of EtherCAT_Master



Parker Automation Controller

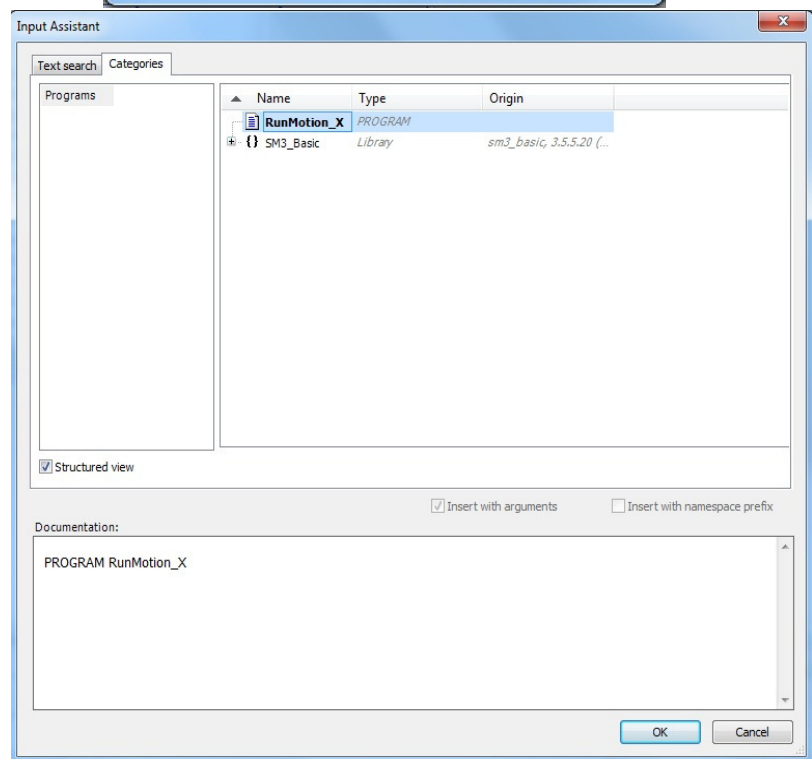
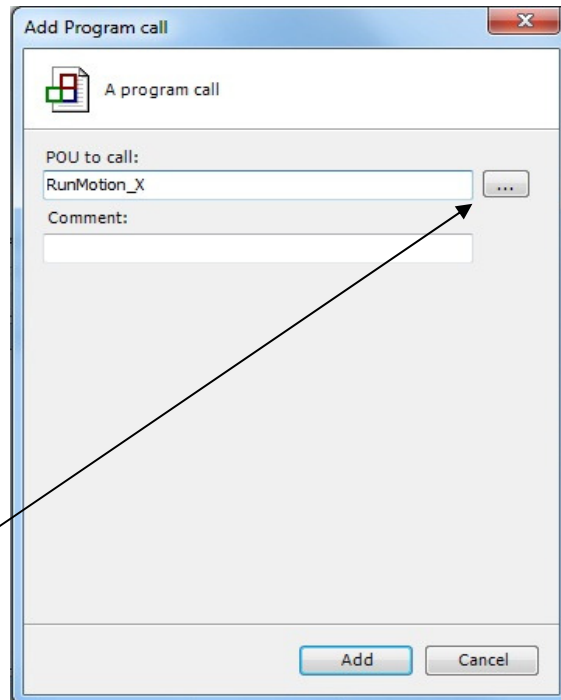
QuickStart

Organize Project

- Either type RunMotion_X, or...

For PAC320-P users, type Counter

- Click the ...
- Select from Input Assistant

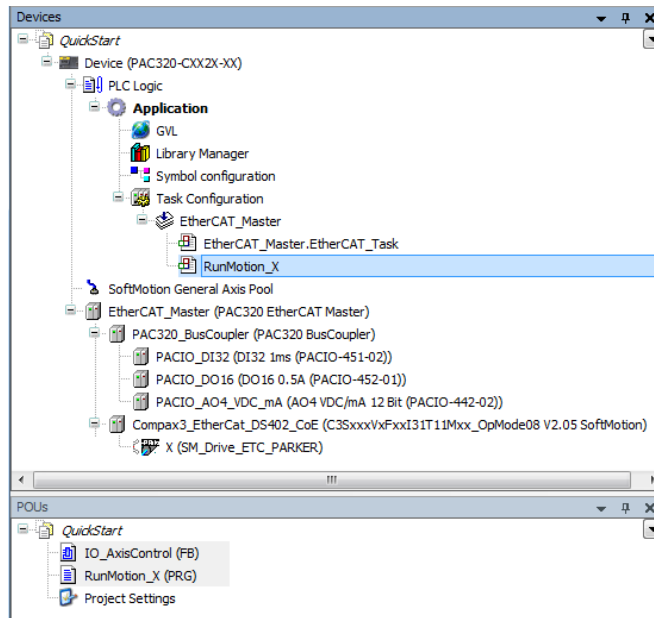


Parker Automation Controller

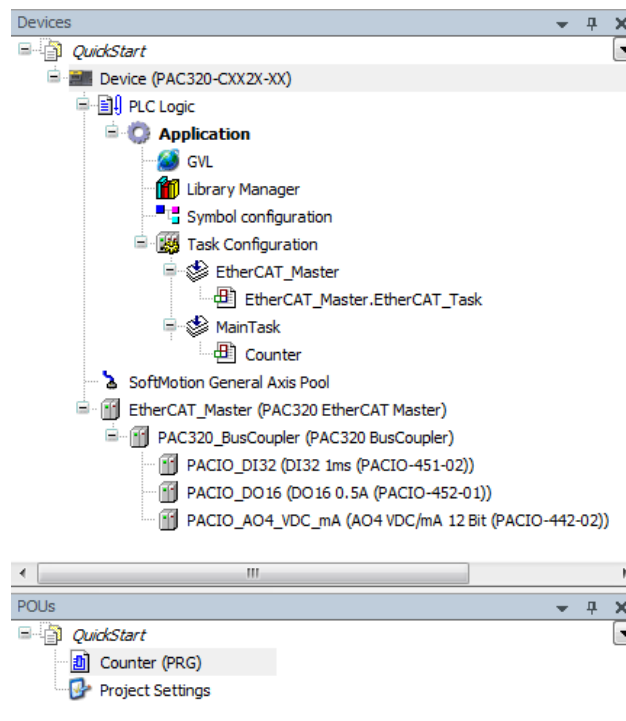
QuickStart

Organize Project

- PAC320-C or PAC320-M projects should look like this:



- PAC320-P projects should look like this:

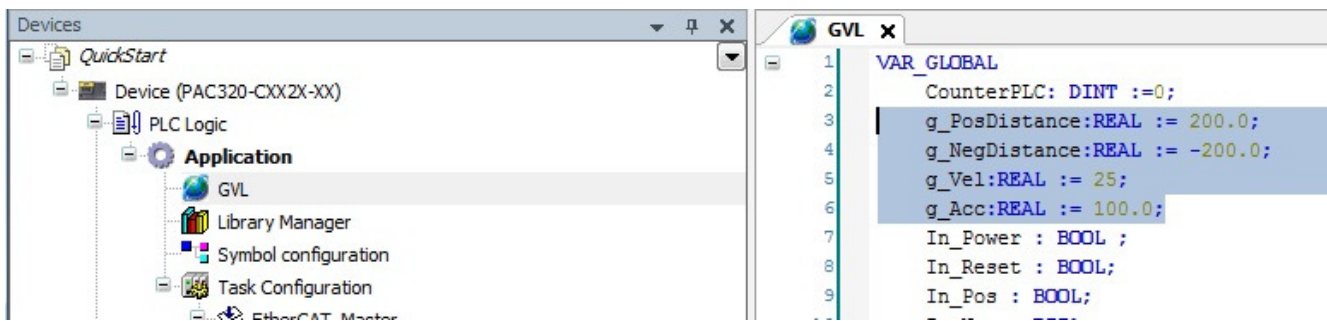


Parker Automation Controller

QuickStart

Set Distance/Velocity/Accel

- RunMotion_X program will enable the Compax3 drive, home and then extend and retract.
 - g_PosDistance is the extend incremental distance.
 - g_NegDistance is the retract incremental distance.
 - g_Vel is the speed/velocity for both moves.
 - g_Acc is the acceleration/deceleration for both moves.
- Set the Distance, Speed and Acceleration to appropriate values for your motor and mechanics in the Global Variable List (GVL):



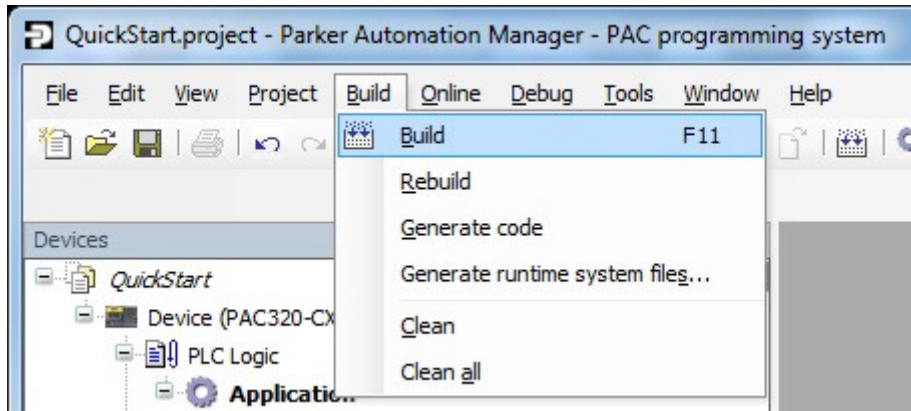
For PAC320-P users, skip this step. The counter program will increment a variable. Proceed to next page to compile.

Parker Automation Controller

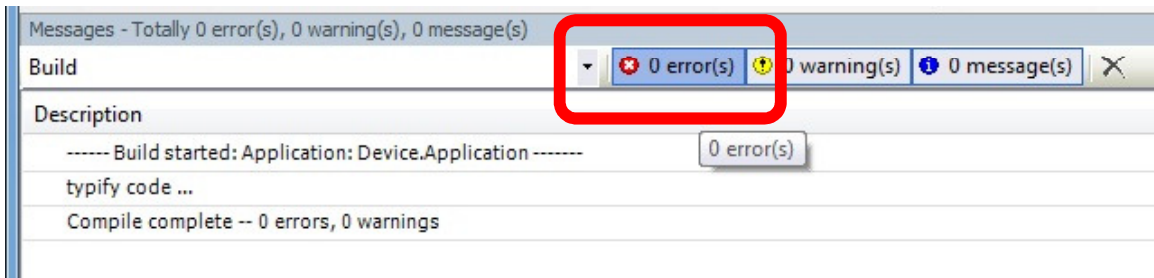
QuickStart

Build (F11)

- Build > Build (F11)



- Message window on bottom should have 0 Errors

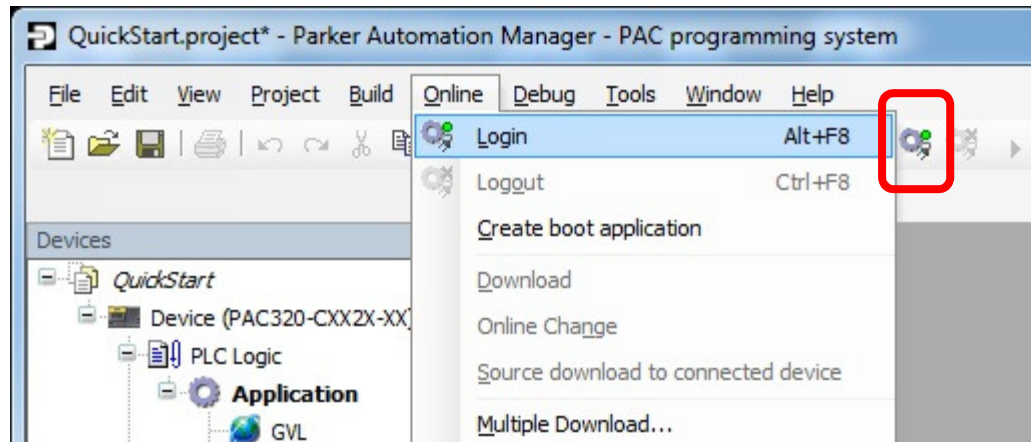


Parker Automation Controller

QuickStart

Login / Download

- Online > Login
- Or, click Login icon on toolbar



- On first time, it'll warn that Application doesn't exist.
- On subsequent logins, if the Application has changed or if PAC is running, it'll give a warning.

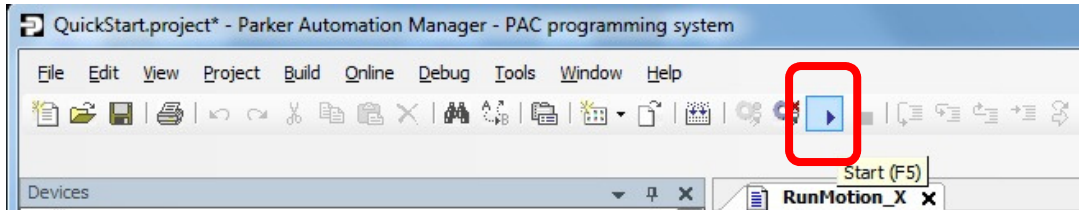


Parker Automation Controller

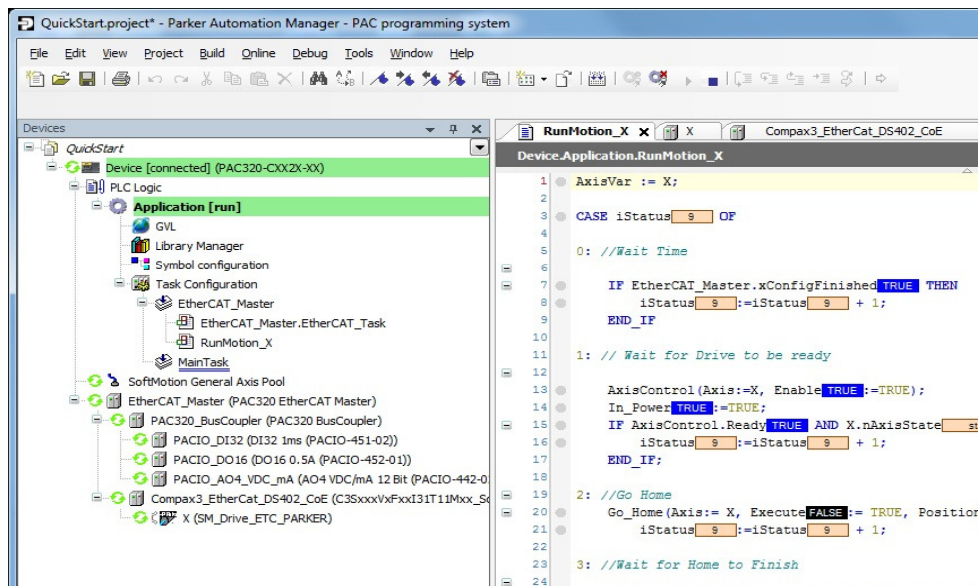
QuickStart

Start PAC Application (F5)

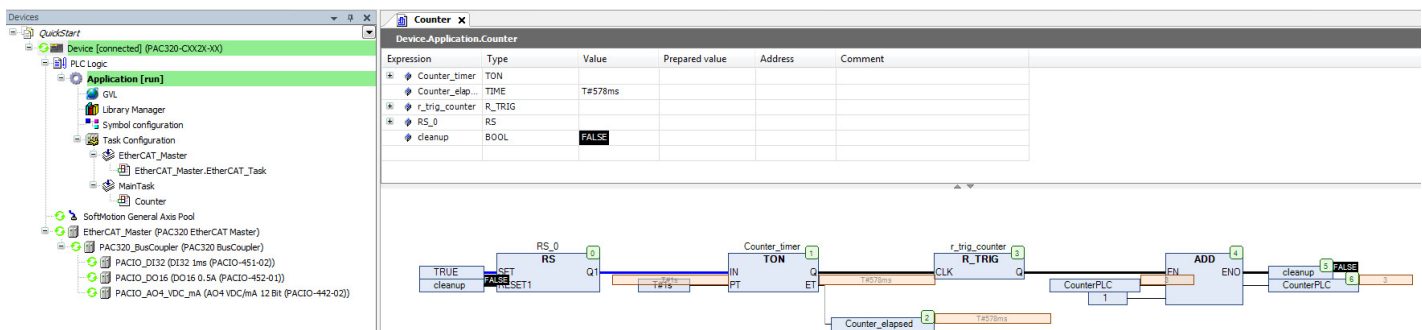
- Now online, click Start or F5 to run application



- EtherCAT devices will start green circular arrows and program starts running.
- RunMotion_X: This will enable the motor, home and then extend and retract.



- Counter: This increment a CounterPLC variable every 1 second.

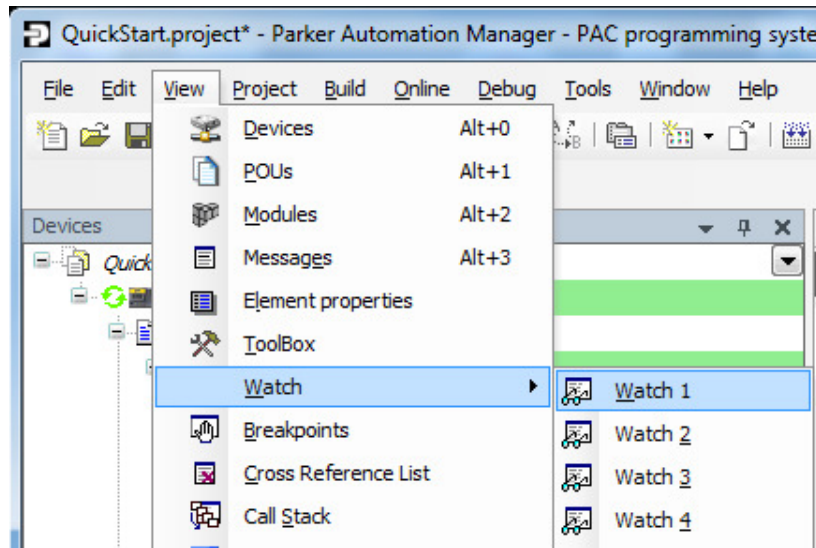


Parker Automation Controller

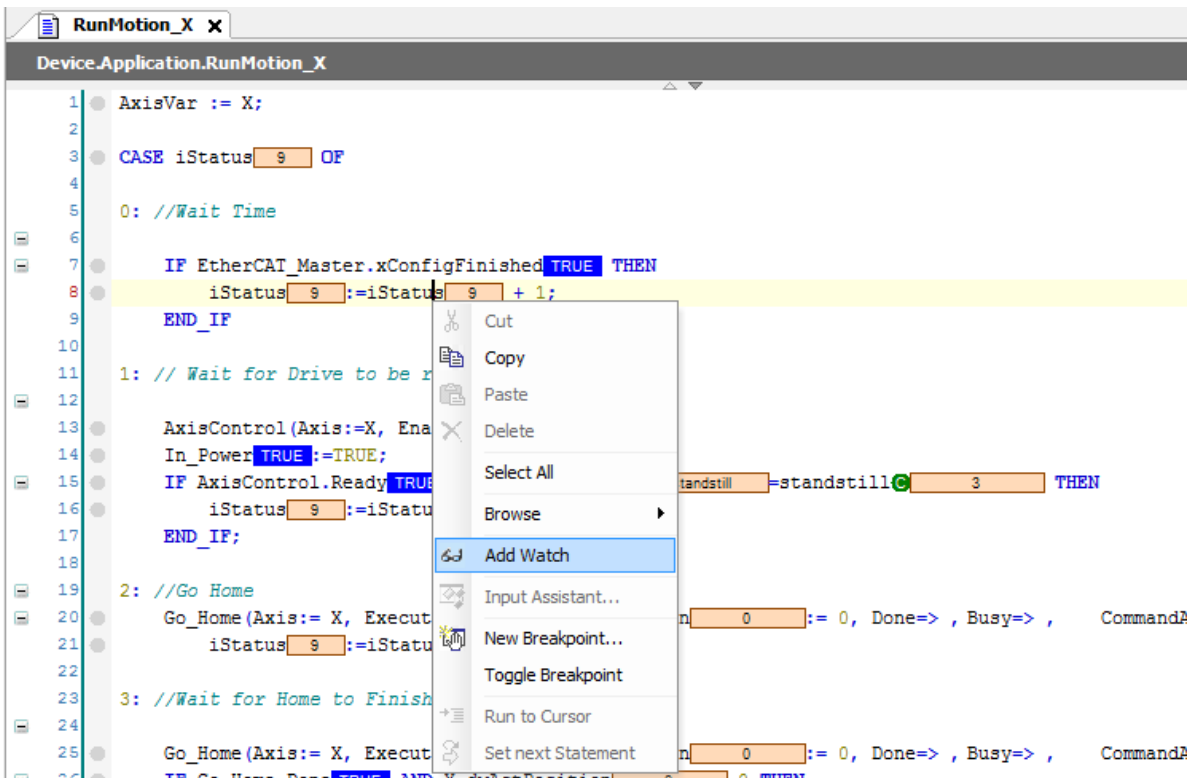
QuickStart

Watch List

- To add variables to a Watch list, go to View > Watch > Watch 1



- Right-click on variables within the program and select Add Watch



Parker Automation Controller

QuickStart

Online Monitoring & Stop Application

The screenshot shows the 'RunMotion_X' application code in the GVL editor. The code is a ladder logic program with the following steps:

```

1  AxisVar := X;
2
3  CASE iStatus[6] OF
4
5  0: //Wait Time
6
7      IF EtherCAT_Master.xConfigFinished[TRUE] THEN
8          iStatus[6] := iStatus[6] + 1;
9      END_IF
10
11 1: // Wait for Drive to be ready
12
13     AxisControl(Axis:=X, Enable[TRUE] := TRUE);
14     In_Power[TRUE] := TRUE;
15     IF AxisControl.Ready[TRUE] AND X.nAxisState[standstill] = standstill[3] THEN
16         iStatus[6] := iStatus[6] + 1;
17     END_IF;
18
19 2: //Go Home
20     Go_Home(Axis:= X, Execute[FALSE] := TRUE, Position[0] := 0, Done=>, Busy=>, CommandAbo:
21         iStatus[6] := iStatus[6] + 1;
22
23 3: //Wait for Home to Finish
24
25     Go_Home(Axis:= X, Execute[FALSE] := TRUE, Position[0] := 0, Done=>, Busy=>, CommandAbo:
26     IF Go_Home.Done[TRUE] AND X.dwActPosition[2000000] = 0 THEN
27         Go_Home.Execute[FALSE] := FALSE;
28         DoMove(Axis:=X, Execute[FALSE] := FALSE);
29         iStatus[6] := iStatus[6] + 1;
30     END_IF
31

```

Below the code is the 'Watch 1' window, which is highlighted with a red box. It contains the following data:

Expression	Execution point	Type	Value	Prepared value	Address
Device.Application...	Cyclic Monitoring	WORD	6		
Device.Application...	Cyclic Monitoring	SMC_AXIS_STATE	standstill		
Device.Application...	Cyclic Monitoring	DWORD	2000000		

- To stop PAC application, click Stop

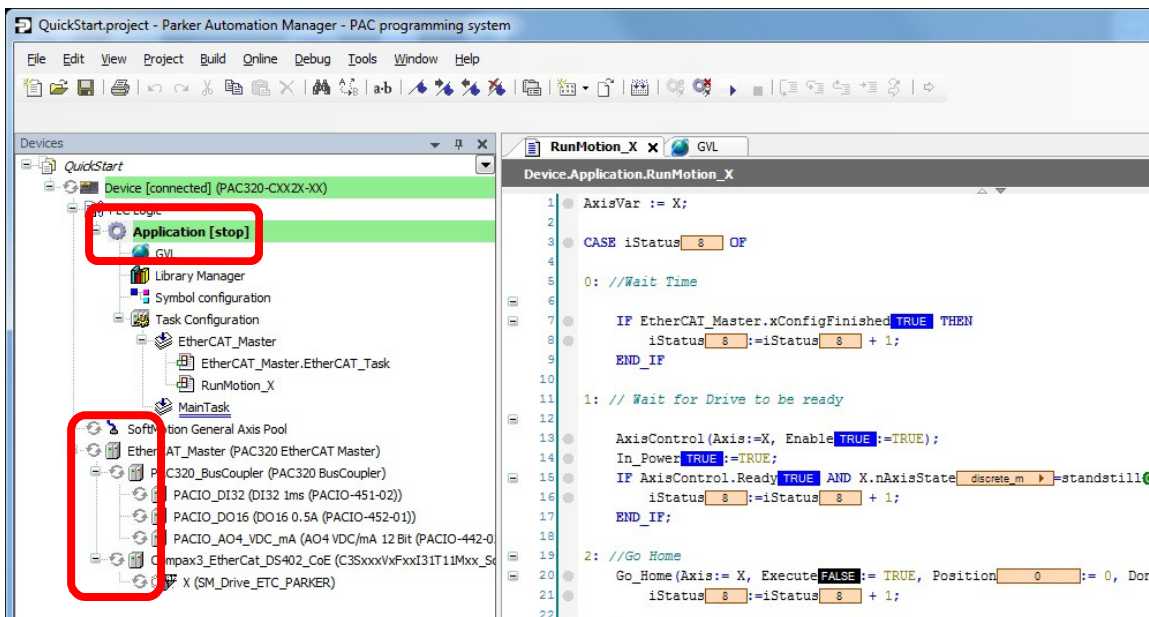
The screenshot shows the Parker Automation Manager interface. The 'QuickStart' project is loaded, and the 'Device [connected] (PAC320-CXX2X-XX)' is selected. The 'PLC Logic' tab is active, showing the 'RunMotion_X' application. The 'Stop' button (a blue square with a white 'X') is highlighted with a red box. The 'Stop' button is located in the top right corner of the interface, next to the 'Run' button. The 'Stop' button is labeled 'Stop (Shift+F8)'.

Parker Automation Controller

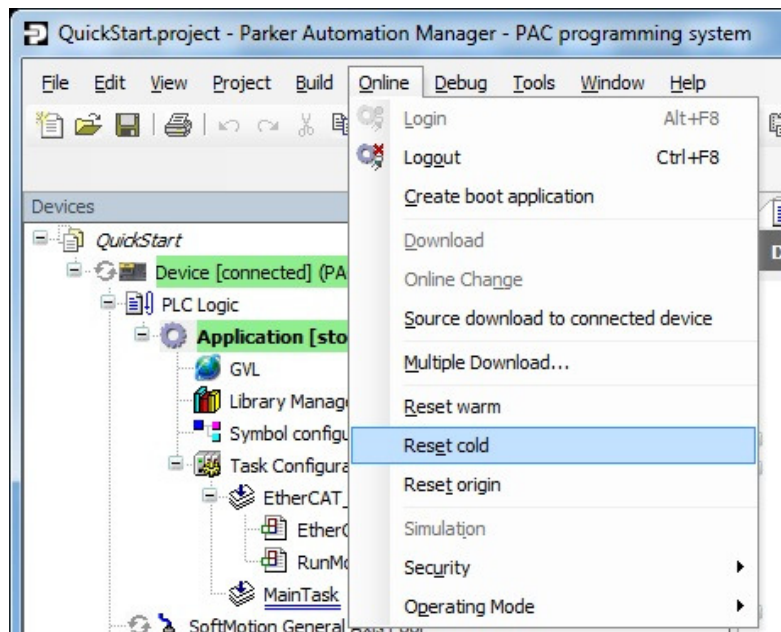
QuickStart

Application in Stop & Reset Cold

- An application in stop, stops updating variables and the EtherCAT slaves will be greyed circular arrows.



- To restart, One > Reset cold. This re-initializes all variables and slaves. Then click Start to run again.



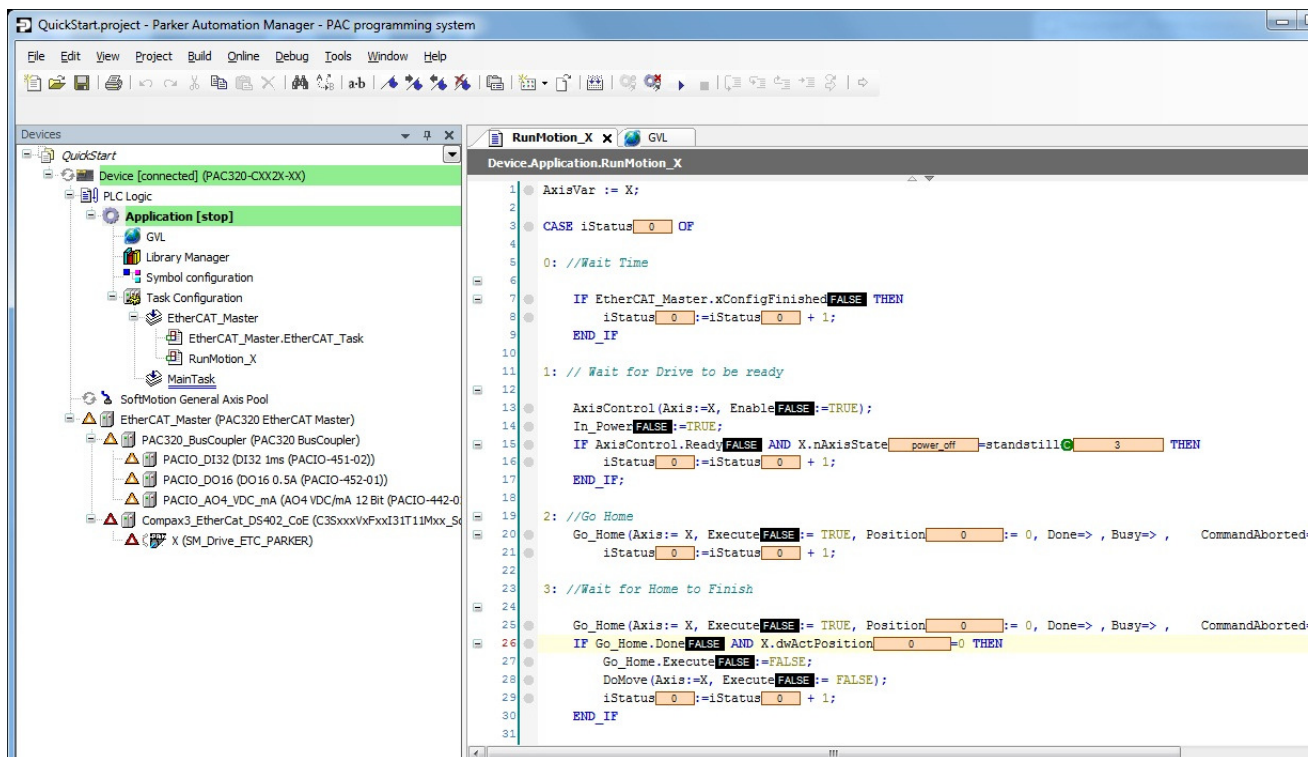
Parker Automation Controller

QuickStart

Application in Stop

- After Reset Cold, Application is in [stop] until Start (F5)

Orange/red triangles are normal in this state.



Questions or Comments? Email emn_support@parker.com

