

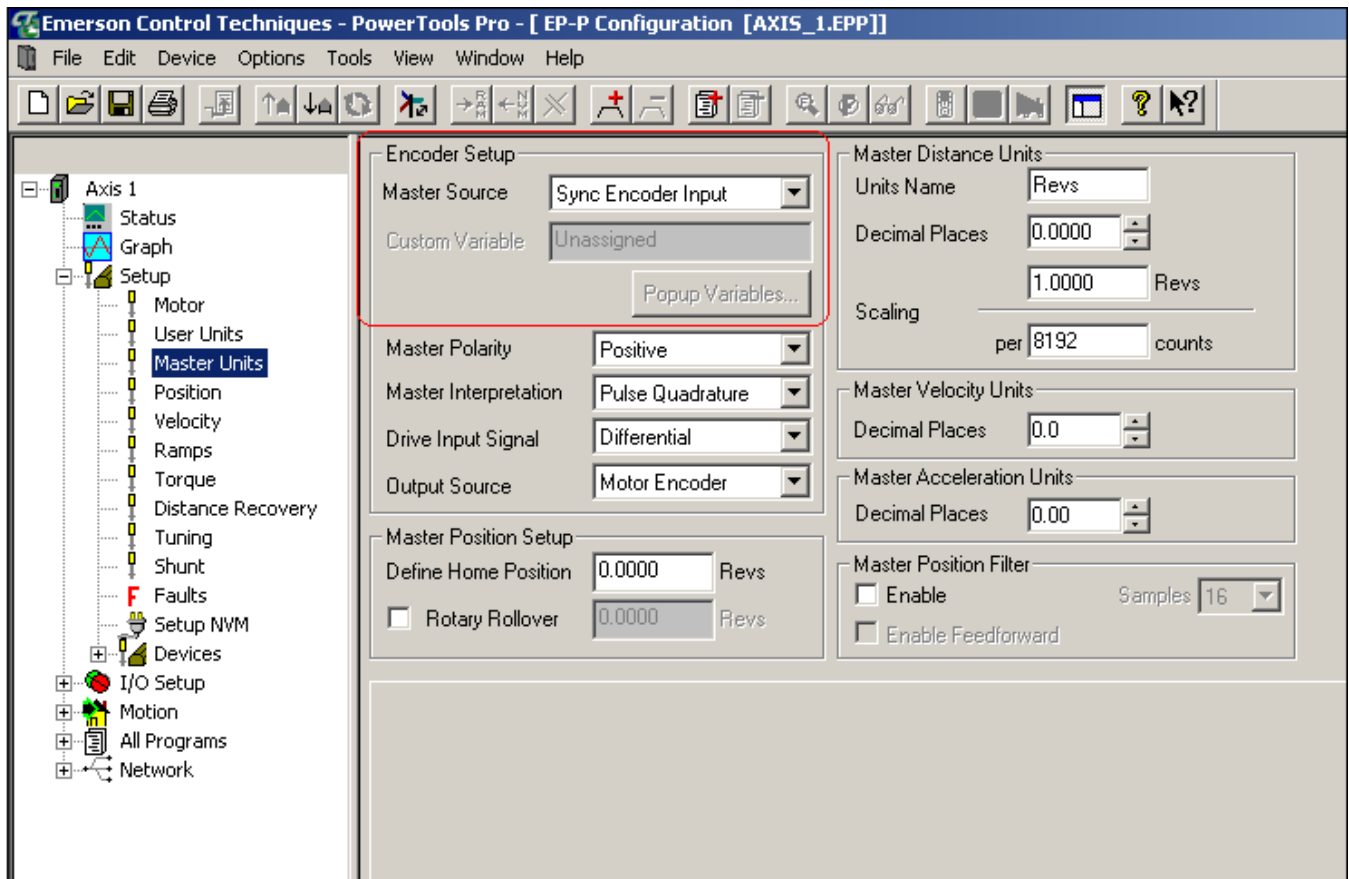
Using Alternate Master

Objective

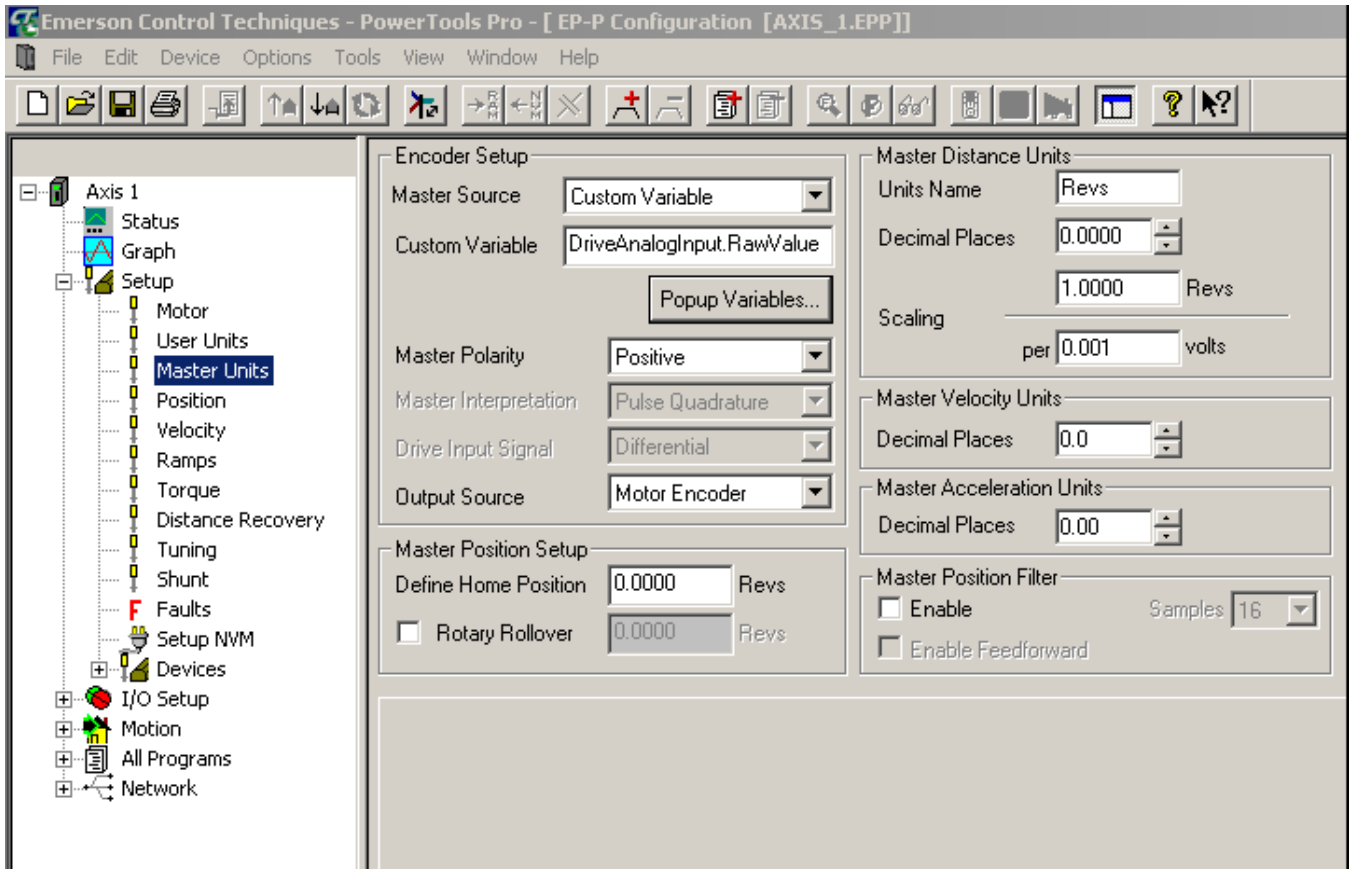
Explain how to set up alternate master for ep-p and ez-motion module.

Overview

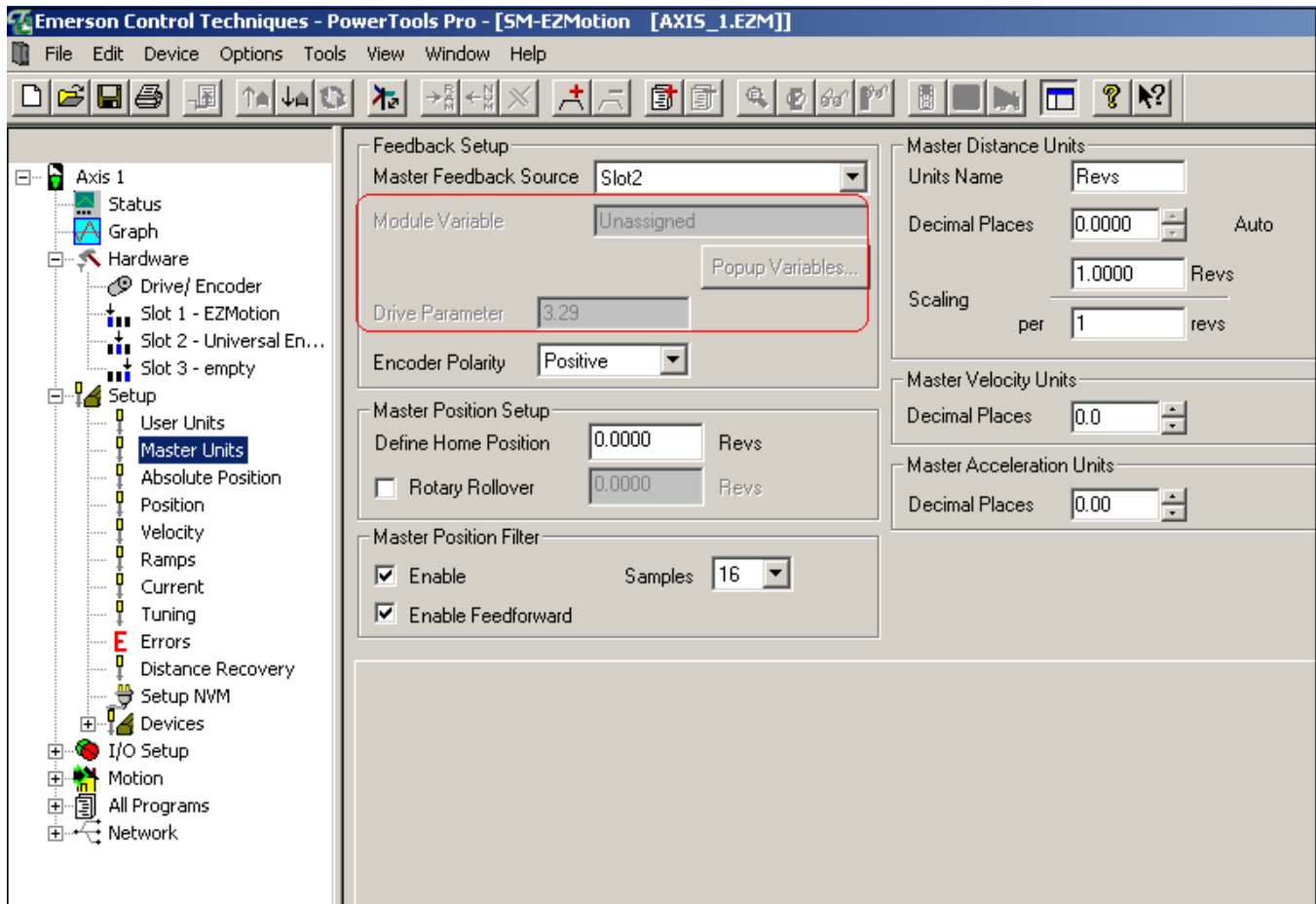
With the Release of 4.4 PowerTools, the master source can be set to any registry parameter as well as any sp-drive parameter for the ez-motion module. Note below the new Encoder Setup selections.



If the Master Source is set to Sync Encoder Input, everything operates as it always has. But, if it is set to a parameter, the Custom Variable selection box becomes un-greayed allowing the selection of a registry parameter. Also, the denominator for the scaling now has a decimal place equal to that of the selected registry parameter and the units of that parameter as well if applicable. Note below, the selected parameter is the raw voltage of the analog input. Note that the Scaling numerator now has three decimal places and the units of volts.



For the EZ-Motion module, the following is set for the standard use.



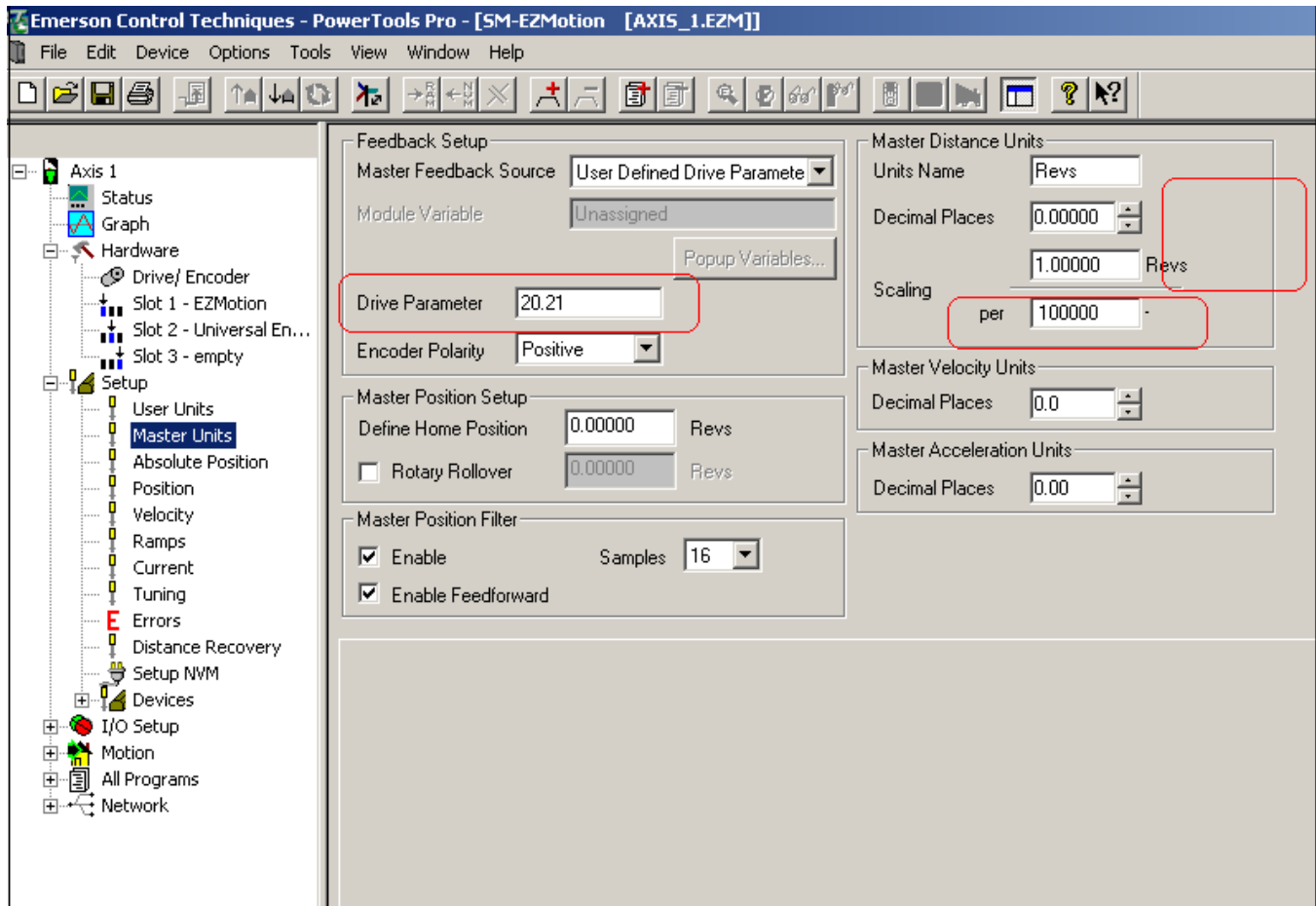
The screenshot displays the 'Emerson Control Techniques - PowerTools Pro' software interface for configuring an axis. The window title is 'Emerson Control Techniques - PowerTools Pro - [SM-EZMotion [AXIS_1.EZM]]'. The interface includes a menu bar (File, Edit, Device, Options, Tools, View, Window, Help) and a toolbar with various icons for file operations and navigation.

The left sidebar shows a tree view for 'Axis 1' with the following items: Status, Graph, Hardware (Drive/ Encoder, Slot 1 - EZMotion, Slot 2 - Universal En..., Slot 3 - empty), Setup (User Units, Master Units, Absolute Position, Position, Velocity, Ramps, Current, Tuning, Errors, Distance Recovery, Setup NVM), Devices, I/O Setup, Motion, All Programs, and Network. 'Master Units' is currently selected.

The main configuration area is divided into several sections:

- Feedback Setup:** Master Feedback Source is set to 'Slot2'. The 'Module Variable' field is 'Unassigned' and is highlighted with a red box. A 'Popup Variables...' button is located to its right. The 'Drive Parameter' is set to '3.29'. Encoder Polarity is set to 'Positive'.
- Master Distance Units:** Units Name is 'Revs', Decimal Places is '0.0000', and Scaling is '1.0000 Revs per 1 revs'.
- Master Position Setup:** Define Home Position is '0.0000 Revs'. The 'Rotary Rollover' checkbox is unchecked, with a value of '0.0000 Revs'.
- Master Position Filter:** 'Enable' and 'Enable Feedforward' checkboxes are checked. The 'Samples' field is set to '16'.
- Master Velocity Units:** Decimal Places is '0.0'.
- Master Acceleration Units:** Decimal Places is '0.00'.

The ez-motion module can be set to a registry parameter as the ep-p. But, it can also be set to use a drive parameter as shown below. Note that drive parameter is 20.21. Also note that the automated decimal point feature is disabled. (It is disabled for a registry parameter as well.)



The screenshot shows the PowerTools Pro interface for configuring Axis 1. The left sidebar lists various setup categories, with 'Master Units' selected under the 'Setup' section. The main configuration area is divided into several sections:

- Feedback Setup:**
 - Master Feedback Source: User Defined Drive Parameter
 - Module Variable: Unassigned
 - Drive Parameter: 20.21
 - Encoder Polarity: Positive
- Master Distance Units:**
 - Units Name: Revs
 - Decimal Places: 0.00000
 - Scaling: per 100000
- Master Position Setup:**
 - Define Home Position: 0.00000 Revs
 - Rotary Rollover: 0.00000 Revs
- Master Position Filter:**
 - Enable:
 - Samples: 16
 - Enable Feedforward:

Example

The goal for this example is to have the master source be a user variable. We will use user variable zero and set it to have a decimal place of four. We will set the scaling such that one master rev is equal to a value of one for the user variable. Below shows the set-up for this example. Note that because user variables do not have any unit value, a question mark appears after the numerator in the scaling.

Encoder Setup		Master Distance Units	
Master Source	Custom Variable	Units Name	Revs
Custom Variable	Var.Var0	Decimal Places	0.0000
	Popup Variables...		1.0000 Revs
Master Polarity	Positive	Scaling	per 1.0000 ?

In order to have a smooth running master, it must be updated every control loop. A possible way to update the user variable in this manner would be the real time program.