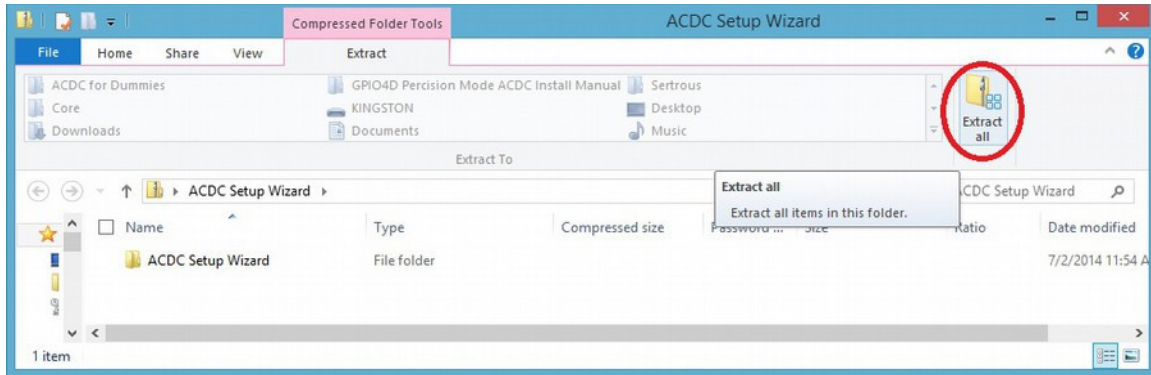


# TB277 (Rev2) - AC/DC Setup Wizard

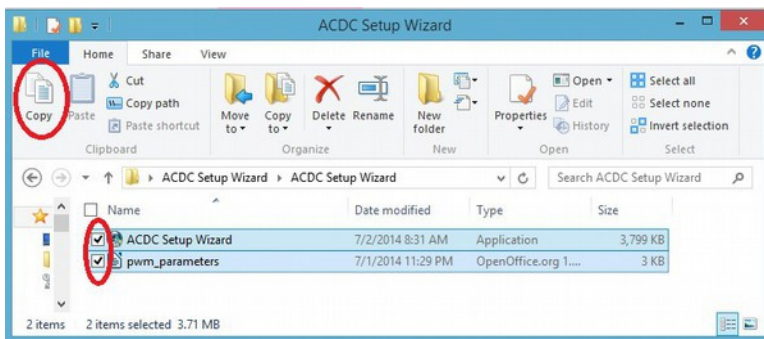
The Centroid AC/DC Setup Wizard simplifies setting up an AC/DC. Alternatively, an AC/DC can be setup without using the tool by referring to the tables listed in your AC/DC documentation.

1. **Download the latest version of the AC/DC Motor Setup Wizard.** Click on the link below to download the latest version of the wizard: [AC/DC Motor Configuration Tool](http://www.centroidcnc.com/usersupport/support_files/acdc/acdc_setup_wizard.zip) (www.centroidcnc.com/usersupport/support\_files/acdc/acdc\_setup\_wizard.zip)
2. **Extract/Decompress the downloaded file.** Double click on the downloaded file. Extract the compressed file. On Windows 8 extraction is done by clicking on the “Extract all” button as shown below.

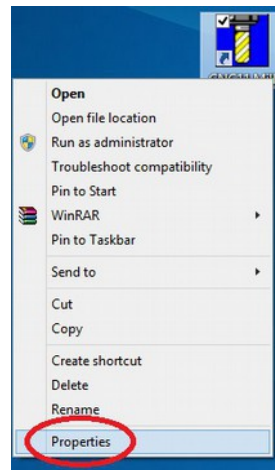


3. **Copy and Paste into the CNCM / CNCT directory.**

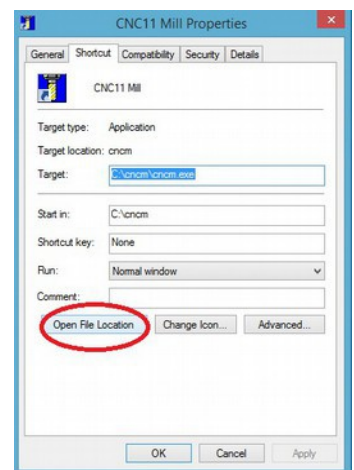
1. Select the extracted files “**ACDC Setup Wizard (.exe)**” and “**pwm\_parameters (.xml)**”.
2. Copy both files.
3. **Right click** on your **CNC11** desktop shortcut.
4. Select **properties**
5. In the shortcut tab, click on “**Open File Location**”
6. Windows explorer will open up in a new window showing the contents of your CNC11 directory (*The directory will be called “CNCM” or “CNCT” depending on whether you have a mill or a lathe*). Paste both files into your CNC11 directory.



Steps 1 & 2. Select and copy the extracted files.



Step 3 & 4. Right click on your CNC11 software selecting properties

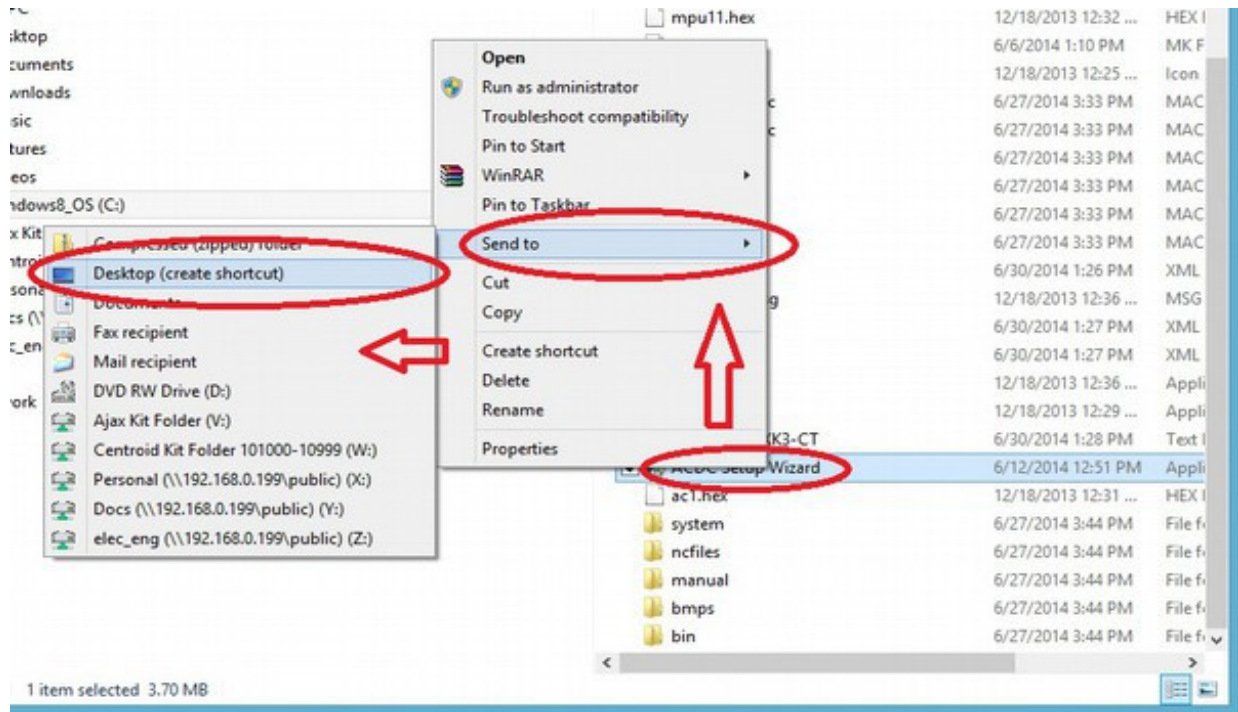


Step 5. Click “open file location”

# TB277 (Rev2) - AC/DC Setup Wizard

## 4. Create a desktop shortcut.

1. Highlight just the **ACDC Setup Wizard (.exe)** inside your CNC11 directory.
2. Right click on the application. A drop down menu will come up.
3. Select **"Send To"** on the drop down menu
4. Select **"Desktop (Create Shortcut)"** as shown below.
5. Exit Windows File Explorer. On your desktop you should now have a shortcut to CNC11 and to the ACDC Setup Wizard.



# TB277 (Rev2) - AC/DC Setup Wizard

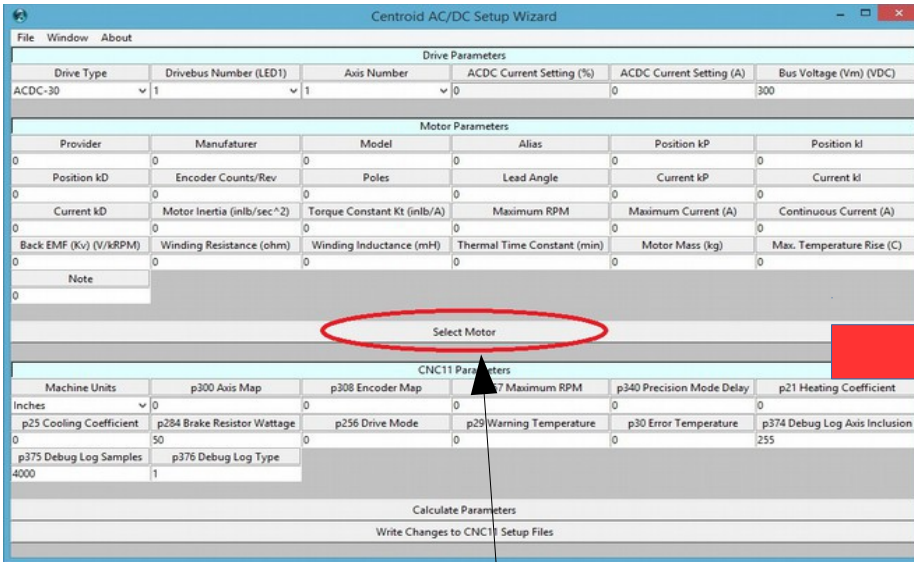
## 5. Using the Centroid AC/DC Setup Wizard

1. On your desktop, double click on the ACDC Setup Wizard. The tool should look like the figure shown below.

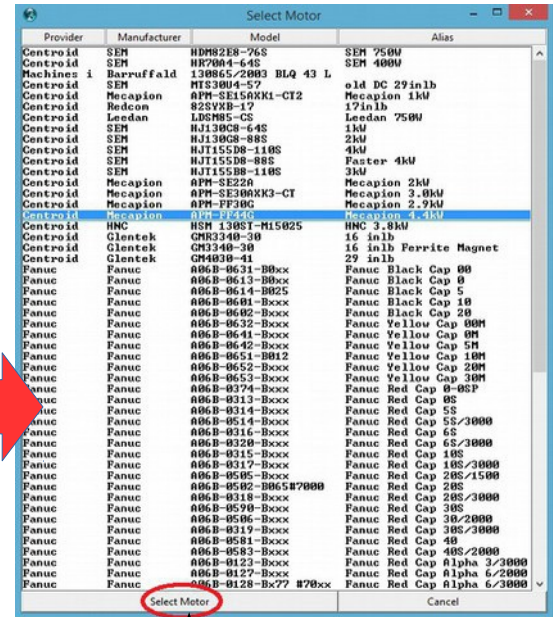
1. **NOTE:** Some of the information provided in the wizard is used for calculating values for unknown/unapproved motors. In this manual we will not be covering these advanced uses of the tool and can ignore the extra information.

### 2. Motor Configuration

1. Click the large **"select motor"** button in the center of the screen.
2. A new window will pop up. Click on the motor you are using for this axis.
3. With your motor highlighted, click **"select motor"** at the bottom of the screen to finalize your selection.



Step 1



Step 2

# TB277 (Rev2) - AC/DC Setup Wizard

## 3. Drive parameters

1. Under “**Drive Parameters**” use the “**Drive Type**” dropdown box to select your model of AC/DC.
2. Under “**Drive Parameters**” set the “**Drivebus Number (LED1)**” and the “**Axis Number**”. For the first axis, set the Drivebus Number to 1 and the Axis Number to 1. If you have multiple AC/DCs connected together, the first axis is defined as the AC/DC that is farthest away from the MPU11. For most applications you want the drive bus number to be the same as the axis number.
3. Under “**Drive Parameters**” enter the motor voltage supply value in the “**Bus Voltage (Vm) (VDC)**” field.
4. Under “**CNC11 Parameters**” enter your brake resistor wattage into “**p284 Brake Resistor Wattage**”. In most system an AC/DC 30 will use 300 watts, and an AC/DC 60 will use 600 watts.

**Step 1**

**Step 2**

**Step 3**

Drive Parameters					
Drive Type	Drivebus Number (LED1)	Axis Number	ACDC Current Setting (%)	ACDC Current Setting (A)	Bus Voltage (Vm) (VDC)
ACDC-30	1	1	67	20.1	300

Motor Parameters					
Provider	Manufacturer	Model	Alias	Position kP	Position kI
Centroid	Mecapion	APM-SE15AXK1-CT2	Mecapion 1kW	1.5	0.02
Position kD	Encoder Counts/Rev	Poles	Lead Angle	Current kP	Current kI
3	8192	8	0.007	1.5	0.1
Current kD	Motor Inertia (inlb/sec^2)	Torque Constant Kt (inlb/A)	Maximum RPM	Maximum Current (A)	Continuous Current (A)
0	0.0106	5.25238917065367	5000	33	11
Back EMF (Kv) (V/kRPM)	Winding Resistance (ohm)	Winding Inductance (mH)	Thermal Time Constant (min)	Motor Mass (kg)	Max. Temperature Rise (C)
38.6	0.204	2.055	37	7.54	45.1
Note					
baseline					

Select Motor

CNC11 Parameters					
Machine Units	p300 Axis Map	p308 Encoder Map	p357 Maximum RPM	p340 Precision Mode Delay	p21 Heating Coefficient
Inches	1	7	5000	1.75	2.567110632310425
p25 Cooling Coefficient	p284 Brake Resistor Wattage	p256 Drive Mode	p29 Warning Temperature	p30 Error Temperature	p374 Debug Log Axis Inclusion
4.504504504504505	300	2	212	260	255
p375 Debug Log Samples	p376 Debug Log Type				
4000	1				

Calculate Parameters

Write Changes to CNC11 Setup Files

General Information					
Brake Resistor (ohms)	Brake Turn On (VDC)	Brake Turn Off Est. (VDC)	Max. Brake Current (A)	Continuous Torque (inlb)	Maximum Torque (inlb)
15.0	348	329	23.2	57.8	105.6

**Step 4**

# TB277 (Rev2) - AC/DC Setup Wizard

## 4. Motor Parameters and General Information

1. Under “**Motor Parameters**” enter your encoder counts in the “**Encoder Counts/Rev**” box.
2. Under “**General Information**” enter your brake resistor resistance in “**Brake Resistor (ohms)**”. For most systems an AC/DC 30 is 15 Ω and an AC/DC60 is 7.5 Ω.
3. Click “**Calculate Parameters**”.

Step 1

Step 3

Step 2

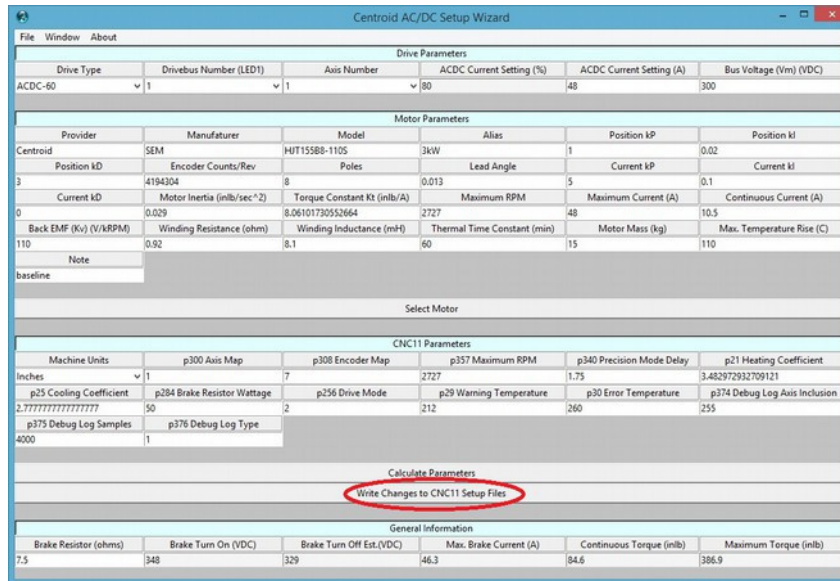
5. **Take a few seconds to review what the tool calculated.** Look over all the boxes to make sure all values seem reasonable. Check for errors in any of the boxes.

### 1. Troubleshooting and Tips

1. If the box labeled “**ACDC Current Setting (%)**” says “**Over 100%**” the drive will still work with the AC/DC. Your motor will not run at max performance due to the AC/DC not being able to provide enough power to the drive.
2. In the unlikely event that the Wizard does encounter a “**Data Missing**” error, there is usually a box with missing information. In this rare situation you will have to acquire the missing information from the motor manufacturer and recalculate values.
3. If you click on the “**Window**” button on the top left of the screen a menu will come up with some additional motor related tools. These tools are provided by Centroid for your convenience and are intended for advanced users.
  1. “**Estimate Motor Performance**” will graph your motors estimated performance using the data provided. The tool will create a graph of motor power and torque.
  2. “**Conversions**” will convert from one unit to another

# TB277 (Rev2) - AC/DC Setup Wizard

6. With **CNC11 closed**, click **“Write change to CNC11 Setup Files”** and as shown below.



7. If multiple drives are being used, repeat this procedure.
  1. For the second drive, select 2 for the drivebus number and axis number. For the third drive, use 3 and so forth.
  2. If all the axes are the same drive model / motor model keep the other parameters the same and continue to the next step. Otherwise, update any other parameters that need changing (such as a different motor for the second axis.)
  3. Recalculate parameters again.
  4. Write changes again to CNC11 setup files.
  5. **Repeat until all drives axes have been setup.**
8. After all drives have been setup close the AC/DC setup wizard.

**Congratulations! Your AC/DC(s) have been configured to work with your motors.**