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.

- Download the latest version of the AC/DC Motor Setup Wizard. Click on the link below to download the latest version of the wizard: <u>AC/DC Motor Configuration Tool</u> (www.centroidcnc.com/usersupport\_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.

📕 I 📮 🖪 = I	Compressed Folder Tools	AC	DC Setup Wizard		- • ×
File Home Share View	Extract			-	^ <b>(</b> )
ACDC for Dummies Core Downloads	GPIO4D Percision M KINGSTON Documents	ode ACDC Install Manual 🎚 Sertroi 💻 Deskto 🎝 Music	us p	Extract all	
	Ext	tract To			20.0001
( → ↑ ↓ ACDC Setup	o Wizard →		Extract all	CDC Setup W	/izard P
A Name	Туре	Compressed size	Password Dize	Ratio	Date modified
ACDC Setup Wizar	d File folder				7/2/2014 11:54 A
v < 1 item					

- 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 shotcut 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 weather you have a mill or a lathe*). Paste both files into your CNC11 directory.

3 <b>II</b> ≐ I		ACE	C Setup	Wizard			-	
Home Shar	View							^
Paste Sh	th ortcut	Copy to	Rename	New folder	Properties	Edit Gistory	Select all	e ction
Clipboard		Organize		New	0	pen	Select	
🔿 = 🕆 📕 + #	CDC Setup Wizard	d → ACDC Set	up Wizard		v C	Search ACD	C Setup Wizard	, p
▲ Name	^		Date mo	dified T	ype	Size		
ACDC S	etup Wizard		7/2/2014	8:31 AM A	pplication		3,799 KB	
Noun o	arameters		7/1/2014	11:29 PM 0	penOffice.o	rg 1	3 KB	

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



Target type:	Application
Target:	B/Variam Variam lexe
Start in:	C:\enom
Shortcut key:	None
Run:	Normal window
Comment: Open File L	Change Icon Advanced.

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

Step 5. Click "open file location"

#### 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.



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

- 1. On your desktop, double click on the ACDC Setup Wizard. The tool should looks 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 <u>not</u> 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 2

#### 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
		- 、			
•		Centroid AC,	/DC Setup Wizard		- 🗆 🗙
File Window About					
		Drive	Parameters		
Drive Type	Drivebus Number (LED1)	Axis Number	ACDC Current Setting (%)	ACDC Current Setting (A)	Bus Voltage (Vm) (VDC)
ACDC-30	$\sim$	$\sim$	67	20.1	200
			1711 N.V.		
	1	Motor	r Parameters	1	
Provider	Manufaturer	Model	Alias	Position kP	Position kl
Centroid	Mecapion	APM-SE15AXK1-CT2	Mecapion 1kW	1.5	0.02
Position kD	Encoder Counts/Rev	Poles	Lead Angle	Current kP	Current kl
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					
		Sel	ect Motor		
		CNC1	1 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		2	212	260	255
p375 Debug Log Samples	p376 Debug Log Type				
4000	1	-			
	i Ko				
		Calcula	te Parameters		
		Write Changes	to CNC11 Setup Files		
		Genera	I 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

- 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  $\Omega$  and an AC/DC60 is 7.5  $\Omega$ .
  - 3. Click "Calculate Parameters".



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

#### 1. Troubleshooting and Tips

- 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 encounters 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

0		Centroid AC	/DC Setup Wizard		
File Window About					
		Drive	e Parameters		
Drive Type	Drivebus Number (LED1)	Axis Number	ACDC Current Setting (%)	ACDC Current Setting (A)	Bus Voltage (Vm) (VDC)
ACDC-60	1	/1 *	80	48	300
	0	Moto	or Parameters		
Provider	Manufaturer	Model	Alias	Position kP	Position kl
Centroid	SEM	HJT155B8-1105	3kW	1	0.02
Position kD	Encoder Counts/Rev	Poles	Lead Angle	Current kP	Current kl
3	4194304	8	0.013	5	0.1
Current kD	Motor Inertia (inlb/sec^2)	Torque Constant Kt (inlb/A)	Maximum RPM	Maximum Current (A)	Continuous Current (A)
0	0.029	8.06101730552664	2727	48	10.5
Back EMF (Kv) (V/kRPM)	Winding Resistance (ohm)	Winding Inductance (mH)	Thermal Time Constant (min)	Motor Mass (kg)	Max. Temperature Rise (C)
110	0.92	8.1	60	15	110
Note baseline		Se	lect Motor		
Note baseline		Se	lect Motor		
Note baseline Machine Units	n 300 Avis Man	Se CNCI	lect Motor 11 Parameters 0357 Maximum RPM	n340 Precision Mode Delay	n21 Heating Coefficient
Note baseline Machine Units Inches	p300 Axis Map	Se CNC1 p308 Encoder Map 7	lect Motor 11 Parameters p357 Maximum RPM 1777	p340 Precision Mode Delay	p21 Heating Coefficient
Note baseline Machine Units Inches a25 Coolino Coefficient	p300 Avis Map 1 1	Se CNCI p308 Encoder Map 7 p356 Drive Mode	lect Motor 1 Parameters p357 Maximum RPM 2727 20 Warnion Teonerature	p340 Precision Mode Delay 1.75 n30 Error Temperature	p21 Heating Coefficient 3.48272932709121 
Note baseline Machine Units Inches p25 Cooling Coefficient 2777777777777	p300 Avis Mep 1 p284 Brake Resistor Wattage	Se CNCI p308 Encoder Map 7 p256 Drive Mode 2	lect Motor 11 Parameters p357 Maximum RPM 2727 p29 Warning Temperature 212	p340 Precision Mode Delay 1.75 930 Error Temperature 340	p21 Heating Coefficient 3.422972932709121 p374 Obbug Log Asis Inclusion 744
Note baseline Machine Units Inches 25 Cooling Coefficient 2777777777777777	p300 Avis Map p284 Brake Resistor Wattage 50 n376 Debug Lon Type	Se CNCI p308 Encoder Map 7 p256 Drive Mode 2	lect Motor 1 Parameters p357 Maximum RPM 2727 p29 Warning Temperature 212	p340 Precision Mode Delay 1.75 p30 Error Temperature 260	p21 Heating Coefficient 3.482972932709121 p374 Debug Log Avis Inclusion 255
Note baseline Machine Units p25 Cooling Coefficient 2.777777777777777777777777777777777777	p300 Axis Map 1 p284 Brake Resistor Wattage 50 p376 Debug Log Type	Se CNCT p308 Encoder Map 7 p256 Drive Mode 2	lect Motor 1 Parameters p357 Maximum RPM 12727 p29 Warning Temperature 212	p340 Precision Mode Delay 1.73 p30 Error Temperature 260	p21 Heating Coefficient 3.482972932709121 p374 Debug Log Avis Inclusion 255
Note baseline Machine Units Inches 275 Cooling Coefficient 27770777777777777777777777777777777777	p300 Axis Map 1 p384 Brake Resistor Wattage 50 p376 Debug Log Type 1	Se CNCI p300 Encoder Map 7 p256 Drive Mode 2	lect Motor 1 Parameters p357 Masimum RPM 2227 p29 Warning Temperature 212	p340 Precision Mode Delay 1.75 p30 Error Temperature 260	p21 Heating Coefficient 3.482972932709121 p374 Debug Log Asis Inclusion [255
Note baseline Machine Units Inches p25 Cooling Coefficient 2777777777777777777777777777777777777	p300 Avis Map 1 p284 Brake Resistor Wattage 50 p376 Debug Log Type 1	Se CNCI p308 Encoder Map 7 p256 Drive Mode 2 Calcul	lect Motor 1 Parameters p357 Maximum RPM 2727 p29 Warning Temperature 212 ate Parameters	p340 Precision Mode Delay 1.75 p30 Error Temperature 260	p21 Heating Coefficient 3.482972932709121 p372 Debug Log Avis Inclusion 255
Note baseline Machine Units Inches p25 Cooling Coefficient p375 Debug Log Samples 4000	p300 Avis Map 1 p34 Brake Resistor Wattage 50 p376 Debug Log Type 1	Se CNCI p300 Encoder Map 7 p250 Drive Mode 2 2 Colord	lect Motor 1 Parameters p357 Maximum RPM 2727 p29 Warning Temperature 212 ste Parameters to CNC11 Setup Files	p340 Precision Mode Delay 1.73 p30 Error Temperature 260	p21 Heating Coefficient 3.482972932709121 p374 Debug Log Avis Inclusion 255
Note baseline Machine Units Inches p35 Cooling Coefficient 277777777777 p375 Debug Log Samples 4000	p300 Avis Map 1 p34 Prote Resistor Wattage 50 p376 Debug Log Type 1	Se CNCI p300 Encoder Map 7 p350 Drive Mode 2 2 2 Celoud Write Change	Iect Motor 11 Parameters p357 Maximum RPM 257 Maximum RPM 222 p29 Warning Temperature 212 ate Parameters ate CRC11 Setup Filer	p340 Precision Mode Delay 1.75 p30 Error Temperature 260	p21 Heating Coefficient 3.482972932709121 p374 Debug Log Asis Inclusion 255
Note baseline Machine Units Inches p25 Cooling Coefficient 2777 Debug Log Samples 4000	p300 Axis Map p384 Brake Resistor Wattage 50 p376 Debug Log Type 1	Se CNCI p300 Encoder Map 7 p256 Drive Mode 2 Calcul Write Change Calcul Gener	lect Motor 1 Parameters p 357 Maximum RPM 272 p 29 Warning Temperature 212 ats Parameters to CNC11 Setup Files al Information	p340 Precision Mode Delay 1.75 p30 Error Temperature 260	p21 Heating Coefficient 3.482972932709121 p374 Debug Log Asis Inclusion [255
Note baseline Machine Units Inches p25 Cooling Coefficient p275 Debug Log Samples 4000 Brake Resistor (ohms)	p300 Avis Map 1 p34 Brake Resistor Wattage 50 p376 Debug Log Type 1 Brake Turn On (VDC)	Se CHCI p300 Encoder Map 7 p250 Drive Mode 2 2 Celoud Write Change Gener Brake Tum OH EsL(VOC)	lect Motor 11 Parameters p357 Maximum RPM 12727 p29 Warning Temperature 1212 ate Parameters to CNC11 Setup Files al Information Max. Brake Current (A)	p340 Precision Mode Delay 1.73 p30 Error Temperature 260 Continuous Torque (inlb)	p21 Heating Coefficient 3-452972932709121 p374 Debug Log Axis Inclusion 255 Maximum Torque (inlb)

6. With **<u>CNC11 closed</u>**, 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 axises 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 axises 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.