# **Quick Start with the HDM Software**

### **STEP 1** Basic Setup

#### To configure the amplifier for initial application and general motor type:

### Click the **Basic Setup** button

HDM V6.0 Beta 8 (ADP-090-09 File Amplifier Tools Help	Transfer AXis)	×
HD Neighborhood Virtual Amplifier COM1: Transfer	AN Network: Address: 0 Input / Output CVM Control Program Analog Command V Loop + I Loop Motor/Feedback Configure Faults	
Sine Commutation	Rotary Motor Amp Enabled F12 To Disable	

On the Basic Setup screen, click **Change Settings** to start the Basic Setup wizard. Use the Back and Next buttons to navigate the screens.

Screen details vary depending on amplifier model and mode selection.

$\backslash$	Settings		
	Motor Family:	Brushless	
	Motor Type:	Rotary	
	Commutation:	Sinusoidal	
	Hall Type:	Digital	
	Hall Phase Correction:	On	
	Use Halls for Velocity/Position:	Off	
	Use Back EMF for Velocity:	Off	
	Motor Encoder:	Primary Incremental	
	Position Encoder	None	
$\setminus$	Multi-mode Port:	Buffered Primary Encoder	
	Operating Mode:	Velocity, Analog Input	
	N		

### Select Motor and Feedback options

**Motor Family = Brushless** For RSF, SHA and FHA

**Motor Type = Rotary** For RSF, SHA and FHA





#### Hall type = Digital

For standard incremental encoder with halls

#### **Motor Encoder = Primary Incremental**

Or select the appropriate feedback device

#### **Position Encoder = None**

This is typically used for dual-loop feedback systems

Select the appropriate operating mode for the application.

Basic Setup	X
Operating Mode Options	
Operating Mode: Velocity	
Command Source: Analog Command	<b>~</b>
Digital Input Source C High Speed Inputs C Multi-mode Port	
< Back	Next > Cancel

### Select additional options

**Commutation mode = Sinusoidal** 

#### Multi-mode port

- = **Buffered Primary Encoder** (for sending encoder signal out to another device)
- = Differential Input (for master encoder input signal, Step & direction input, etc)



### Click Finish

**STEP 2** 

To configure the amplifier for the specific motor/feedback:

Please utilize the pre-engineered motor file designed specifically for the actuator and servo drive.

To load the Actuator(motor) file from the HDM software:



🎫 Restore N	Motor	Data from Di	sk			×
Lo	ok in:	🛅 MotorData	3	-	ø <b>&gt;</b> ===	
My Recen	ıt	🛅 FHA 🛅 RSF				
Documen Documen Documen	ts )					
My Docume	ents					
My Compu	ter					
My Netwo	rk	File name:				Open
Places		Files of type:	Motor Files (*.ccm	)	<u> </u>	Cancel

# 3. Select the appropriate file and click **Open**

👟 Restore Moto	r Data from Dis	sk			×
Look in:	🛅 32C		T	ø 🍠 💷 📰	
My Recent	<ul> <li>FHA-32C-1</li> <li>FHA-32C-1</li> <li>FHA-32C-1</li> </ul>	100-E250-A.ccm 100-E250.ccm 100-US250-A.ccm			
	<ul> <li>FHA-32C-1</li> <li>FHA-32C-1</li> <li>FHA-32C-1</li> <li>FHA-32C-1</li> </ul>	100-US250.ccm 160-E250-A.ccm 160-E250.ccm			
Веякор	<ul> <li>FHA-32C-1</li> <li>FHA-32C-5</li> <li>FHA-32C-5</li> </ul>	160-US250-A.ccm 160-US250.ccm 50-E250-A.ccm			
My Documents	FHA-32C-8	50-E250.ccm 50-U5250-A.ccm 50-U5250.ccm			
My Computer					
My Network Places	File name: Files of type:	FHA-32C-160-U5250 Motor Files (*.ccm)	.ccm		Open Cancel

## 4. Click *Calculate*

Motor/Feedback - Rotary Motor	×
Motor Feedback Brake\Stop	
Manufacturer: Harmonic Drive Systems	
Model Number: FHA-32C-160-US250	
Motor Inertia: 7.1 kg·cm <sup>2</sup>	
Number of Poles: 12 0.563 N·m/Apk	
Back emf Constant:           Peak Torque:         58.96         V/krpm	
4.701     N·m     Resistance:       Continuous Torque:     2 ohms	
2.39 N·m Inductance:	
Velocity Limit:	
	!

### STEP 2 Continued

The *Calculate function* uses the motor and encoder values entered to calculate the initial loop gains and limits. These can be modified later to fine-tune the amplifier.

lotor/Feedback - Rotary Motor		×
Calculated Amplifier Settings		×
r		
Current Loop Cp Gain:	591	
Current Loop Ci Gain:	28	
Peak Current Limit	8.35	A
Continuous Current Limit	3	A
I²T Time Limit	1000	ms 🔜
Current Loop Offset	0	A
Velocity Loop Vp Gain:	1462	
Velocity Loop Vi Gain:	325	
Velocity Integral Drain:	0	
Velocity Loop Velocity Limit:	2000	rpm
Velocity Loop Accel., Decel., Fast Stop:	667	rps <sup>2</sup>
Velocity Tracking Window:	240	rpm
Velocity Tracking Time:	100	ms
Position Loop Proportional Gain Pp:	1000	
	OK	Cancel
Calculate	ОК	Cancel

5. Click *OK* to load the values into volatile memory.



6. On the main screen, click *Save to flash* to save the amplifier data too.