



Digiflex[®] Digital Servo Drive Startup Guide DR Series



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(Clear the Annotations check box when printing to prevent printing this text)

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Foreword

This interactive guide will provide an overview of connection and basic setup instructions for Advanced Motion Controls DR100EE Series Digiflex® digital servo drives. The basic setup of a Digiflex® drive is designed to be analogous to the set up and tuning of an analog amplifier. These instructions will walk you through the following steps necessary to start up your motor and drive:

1. Connect to a drive
2. Set current, voltage, and temperature limits
3. Enter motor data
4. Tune the drive current control loop
5. Determine motor commutation (brushless and linear motors)
6. Tune the drive velocity control loop
7. Analog command setup

These instructions are written for use with either a brush type motor or a brushless motor with any of the following feedback sources:

- Hall sensor only
- Encoder only
- Encoder with hall sensors
- Resolver

Save your project often to the Drive Suite\My Projects directory.

Note: When entering numerical data, the <Tab> button must be pressed to accept the data into the field.

Assistance for topics not covered in this guide is available through any of the following:

- DriveSuite Help files
- www.a-m-c.com
- Technical Assistance via phone: 805-389-1935
- Technical Assistance via e-mail: techsupport@a-m-c.com.

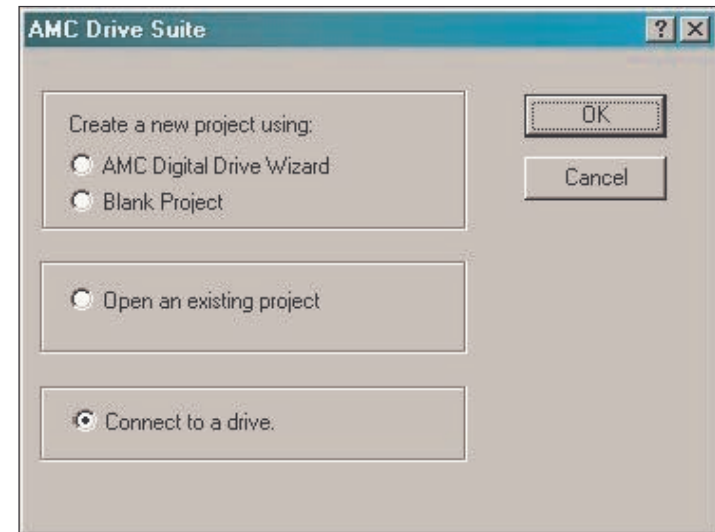
Connect to a Drive

1. Install the AMC DriveSuite software onto your PC.
2. Connect the drive communications connector, CN1 (9-pin female Sub-D) to an available RS-232 communications port on your PC. Use a straight-through cable (not null-modem.)
3. Connect motor feedback (hall sensor, encoder, resolver), as applicable, to the corresponding pins on the P3 connector.
4. If desired, connect an Inhibit/Enable circuit to one of the Programmable Digital Input pins on the CN2 Connector.
 - a. Connect to pins 17 and 26 or pins 18 and 9 for differential digital input.
 - b. Connect to pins 11, 12, 13, or 19 for single-ended digital input.
5. Connect motor phase wires to the MA, MB, and MC terminals on the P1 connector.

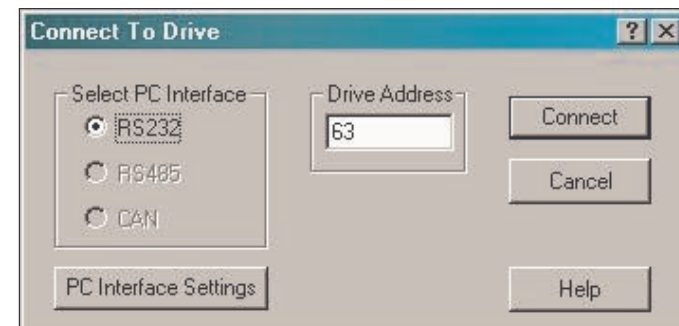
Note: if using a brush type motor, connect to MB and MC terminals.
6. Apply power to the drive.
7. Double click on AMC_DriveSuite.exe to start the setup software.

Connect to a Drive

8. At the opening screen, select *Connect to a drive* and click "OK".

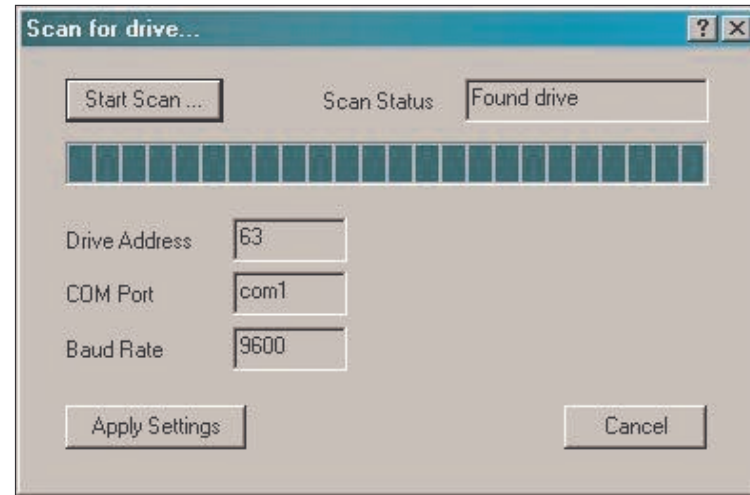


9. To determine the appropriate communications settings and connect to the drive, perform the following steps:
 - a. Click *PC Interface Settings* to open the RS-232 Settings dialog box.
 - b. Click *Auto Detect* to automatically detect your PC communications settings.

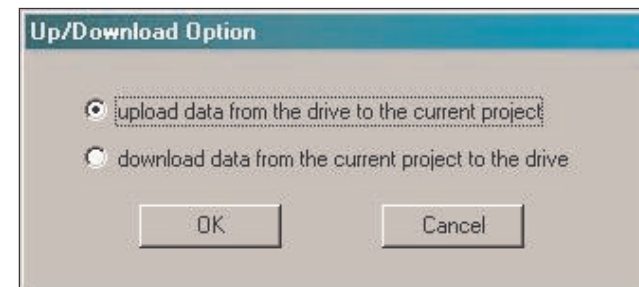


Connect to a Drive

- c. Click *Start Scan* to begin the detection process.
- d. When complete, click *Apply Settings*, then *Connect* in the Drive Connection window.



- e. If connecting for the first time, select *Upload data from the drive to the current project*. You are now connected to the drive. The status indicators on the bottom right corner of the DriveSuite main window should indicate "BRIDGE DISABLED" and "CONNECTED."

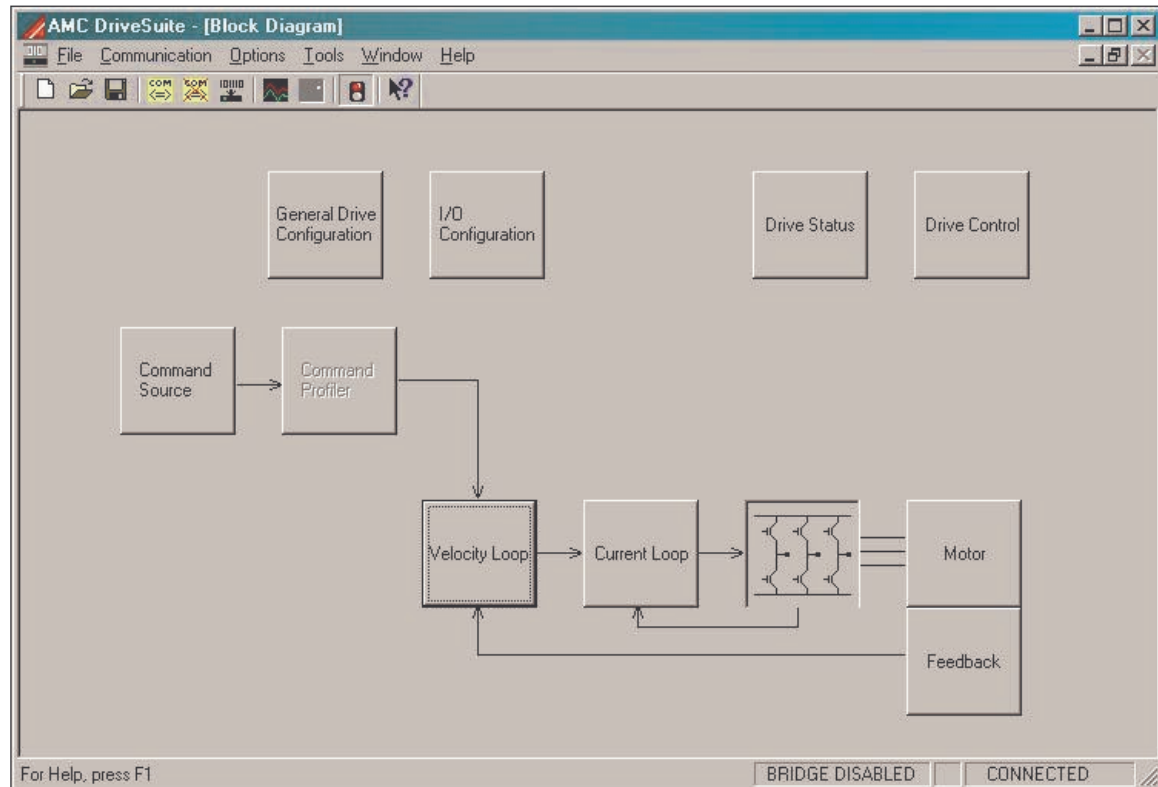


Connect to a Drive

10. To change the communications baud rate, perform the following steps:

- a. On the Menu bar, select *Communication* → *Connect* (or click the *Connect* icon )
- b. Click the *PC Interface Settings* button to open the RS-232 Settings window.
- c. Select the appropriate baud rate.
- d. Click *Connect* in the Drive Connection Window to set the selected baud rate.
- e. On the Menu Bar, select *Communication* → *Store* (or click the *Store Settings* icon ) , then OK to store parameters to the drive nonvolatile memory.

Note: Some PC's may not communicate reliably at higher baud rates. Most PC's maintain stable communication at 9,600 and 19,200 baud.



Enter Motor Data

1. In the Block Diagram window, select *Motor* to open the Motor Data window.
2. Enter the *Manufacturer* name and motor *Model* number.
3. Select the appropriate *Motor Type*.
4. Select the *Motor Constants* tab.
5. Enter data from the applicable motor data sheet into the appropriate block in the Motor Data window.
6. Select the appropriate color or numerical wire designations in the *Wire Identification* section.
7. Select the *Primary Feedback* tab.
8. Enter any Hall Sensor and Encoder data.
9. For motors with Resolver feedback, select either 12- or 14-bit interpolation.
10. To save the motor data to a local data base, click *Save to Database*.
 - a. To recall motor data from the database in the future, click *View Database* and select the appropriate manufacturer and model number.
11. Click OK to save the motor data to the drive nonvolatile memory.

Motor Data

Manufacturer: AMC Default Motors
 Model: Default Brushless
 Motor Type: Brushless
 Feedback Model: 120° Halls, 5000 Line Encoder

View Database

Motor Constants: Primary Feedback

Voltage Constant: 43 V/rad/sec
 Torque Constant: 0.014 N·m/A
 Resistance: 2.2 Ohm
 Inductance: 0.91 mH
 Thermal Time Constant: 2 minutes
 Max Motor Temperature: 0 °C

Maximum Current: 30 Amps
 Rated Current: 15 Amps
 Number of Poles: 8
 Maximum Speed: 5 rpm
 Max Current At Max Velocity: 3 Amps
 Nominal Bus Voltage: 200 Volts

Wire Identification:

Phase A: [Red] / [Red] / [Red] / [Red]
 Phase B: [White] / [White] / [White] / [White]
 Phase C: [Purple] / [Purple] / [Purple] / [Purple]

Motor Data

Manufacturer: AMC Default Motors
 Model: Default Brushless
 Motor Type: Brushless
 Feedback Model: 120° Halls, 5000 Line Encoder

View Database

Motor Constants: Primary Feedback

☒ Hall Sensors
☒ Motor Encoder

120° Hall Phasing
 60° Hall Phasing
 Custom Hall Phasing

Primary Feedback Polarity: Inverted
 Line Count: 5000 Lines/Rev
☒ Index
 # of Indices per Revolution: 1

Note: AutoCommutation will detect the proper feedback settings if unknown.

Wire Identification:

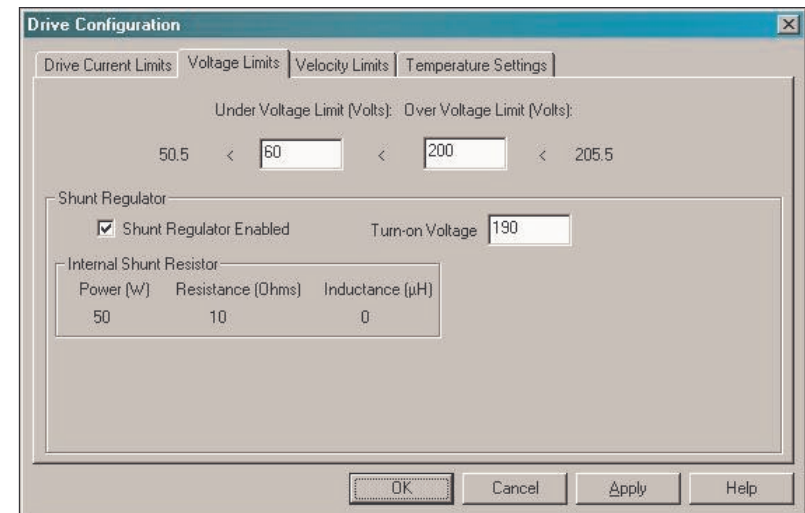
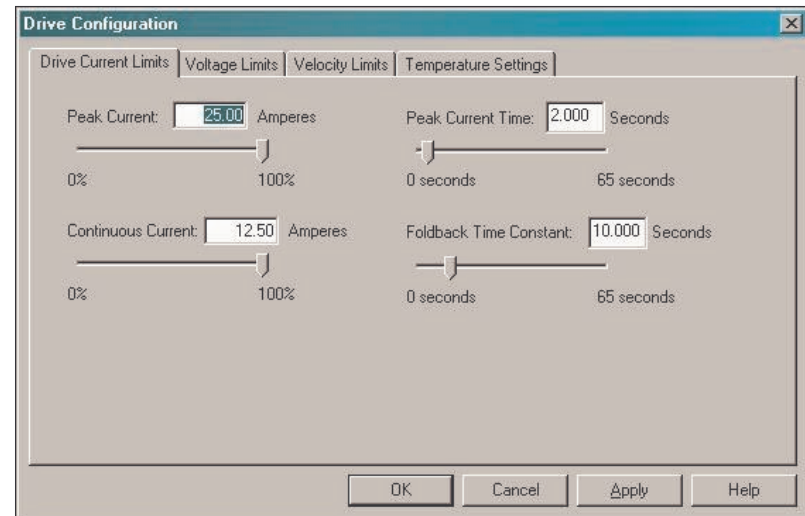
Hall 1 Connector: + [] / [] / [] / 1, - [] / [] / [] / 2
 Hall 2 Connector: + [] / [] / [] / 3, - [] / [] / [] / 4
 Hall 3 Connector: + [] / [] / [] / 5, - [] / [] / [] / 6

Encoder Channel A: + [] / [] / 1 / 1, - [] / [] / 1 / 2
 Encoder Channel B: + [] / [] / 1 / 3, - [] / [] / 1 / 4
 Encoder Index: + [] / [] / 1 / 5, - [] / [] / 1 / 6

OK Cancel Save to Database Help

Set Current, Voltage, Velocity, and Temperature Limits

1. In the block diagram window, select *General Drive Configuration*.
2. Set the peak and continuous current limits based on those indicated in the motor data sheet.
3. Set the maximum peak current time and foldback time constant based on system requirements and motor data sheet.
 - a. Foldback time constant is the time, in seconds, for the linear decrease from the amplifier peak current setting to the amplifier continuous current setting.
4. Select the *Voltage Limits* tab.
5. Set the Over- and Under-Voltage limits based on system requirements.
6. If available, set the Shunt Regulator turn-on voltage (model dependant)
 - a. Note: If unsure, set approximately 10V above nominal bus voltage.
7. If necessary, set the External Shunt Resistor specifications (model dependant).
8. On the Menu Bar, select *Communication* → *Store* (or click the *Store Settings* icon ) , then OK to store parameters to the drive nonvolatile memory.



Set Current, Voltage, Velocity, and Temperature Limits

9. Select the *Velocity Limits* tab
10. Enter values for the *Motor Over Speed* and *Zero Velocity Window*.

The screenshot shows the 'Drive Configuration' dialog box with the 'Velocity Limits' tab selected. The dialog has four tabs: 'Drive Current Limits', 'Voltage Limits', 'Velocity Limits', and 'Temperature Settings'. The 'Velocity Limits' tab contains the following fields and values:

Parameter	Value	Unit	Limit
Motor Over Speed	200000	Counts/Sec	
Zero Velocity Window	100	Counts/Sec	
At Velocity Window	0	Counts/Sec	
Velocity Following Error	0	Counts/Sec	
Positive Velocity Limit	0	Counts/Sec	< Motor Over Speed
Negative Velocity Limit	0	Counts/Sec	< Motor Over Speed

At the bottom of the dialog are four buttons: 'OK', 'Cancel', 'Apply', and 'Help'.

11. Select the *Temperature Settings* tab.
12. Set the *Motor Over Temperature* setpoint for *Event Action Active* and *Event Action Inactive*.
 - a. Note: Maximum motor temperature is determined by the value entered into the *Motor Data* window.
13. Select the input source for motor temperature.
14. If available, set the values for *User Drive Over Temperature* (model dependant).
15. Click *OK* or *Apply* to accept the data entered.
16. On the Menu Bar, select *Communication* → *Store* (or click the *Store Settings* icon ) , then OK to store parameters to the drive nonvolatile memory.

The screenshot shows the 'Drive Configuration' dialog box with the 'Temperature Settings' tab selected. The dialog has four tabs: 'Drive Current Limits', 'Voltage Limits', 'Velocity Limits', and 'Temperature Settings'. The 'Temperature Settings' tab contains the following fields and values:

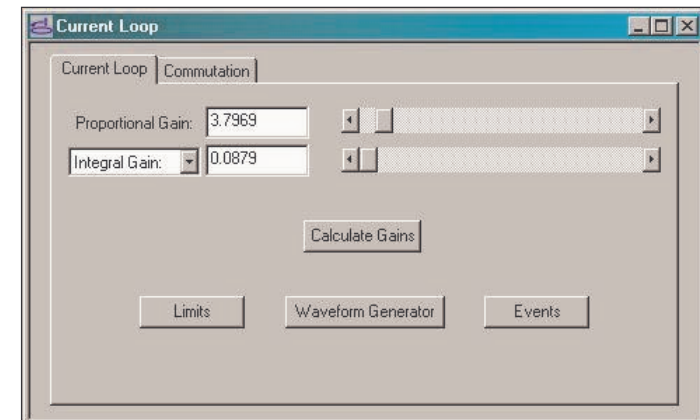
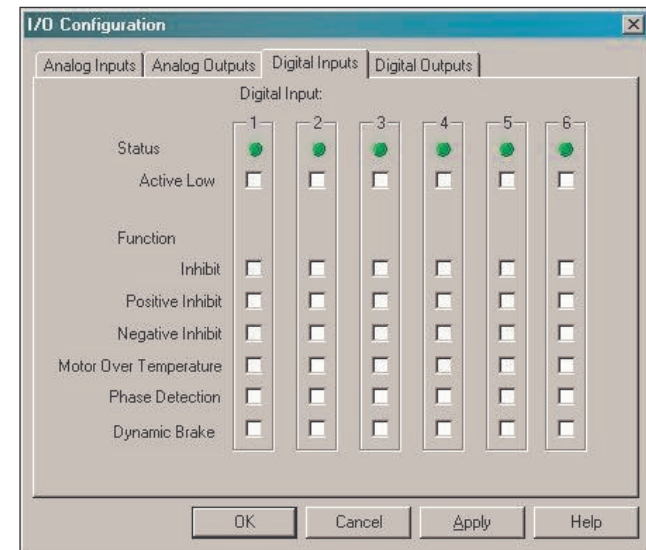
Parameter	Value	Unit	Limit	Source
Event Action Active Level	100	°C	<= 155 °C	Analog Input 3
Event Action Inactive Level	95	°C	<= 95 °C	Commanded Input 1
Bridge Disable Level	65	°C	<= 65 °C	
Bridge Re-enable Level	60	°C	<= 60 °C	

At the bottom of the dialog are four buttons: 'OK', 'Cancel', 'Apply', and 'Help'.

Current Loop Tuning

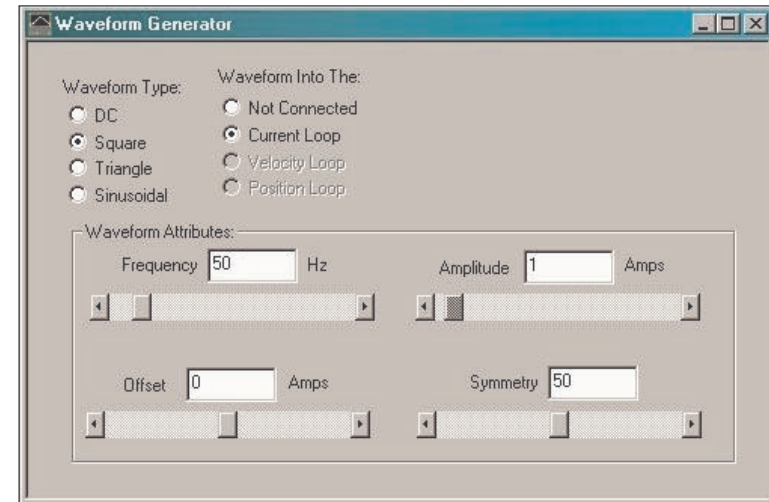
Caution: Disconnect motor from the load and secure the motor. Sudden motion will occur.

1. Set up the drive as follows:
 - a. Click the I/O Configuration Block
 - b. Select the *Digital Inputs* Tab
 - c. If an external Inhibit/Enable circuit is used during setup, use the check boxes to assign the Inhibit function and proper polarity (e.g. active high or active low) to the appropriate Digital Input channel.
 - d. If no external Inhibit/Enable circuit is used during setup, clear check boxes for all inhibits. Inhibit/Enable will be controlled solely through the DriveSuite *Enable/Disable Drive* icon .
2. On the Main Block Diagram, click *Current Loop* to open the current loop tuning parameters.
3. To set starting values for proportional and integral gains, click the *Calculate Gains* button.
 - a. **Note:** *Calculate Gains* utilizes the values entered into the Motor Data screen. Accuracy of the calculated values is determined by the accuracy of the motor data.



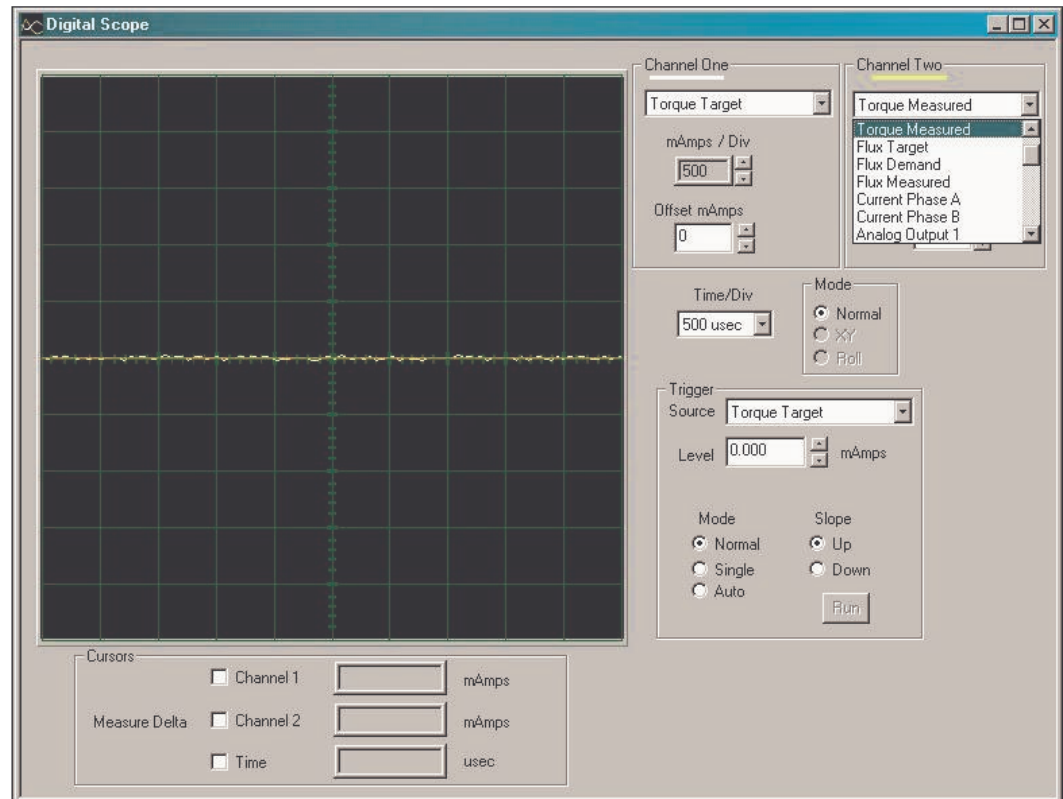
Current Loop Tuning

4. In the Current Loop window, click the *Waveform Generator* button (or select Tools → Waveform Generator on the menu bar) to open the Waveform Generator screen. Set up the Waveform Generator as follows:
 - a. Select *Square* Waveform Type.
 - b. Change the frequency to 50Hz.
 - c. Ensure *Offset* is zero.
 - d. Ensure *Symmetry* is 50%.
 - e. Select *Waveform into the Current Loop*
 - f. Set the waveform amplitude to an appropriate value.
 - i. Begin with ~50% of continuous current setting.



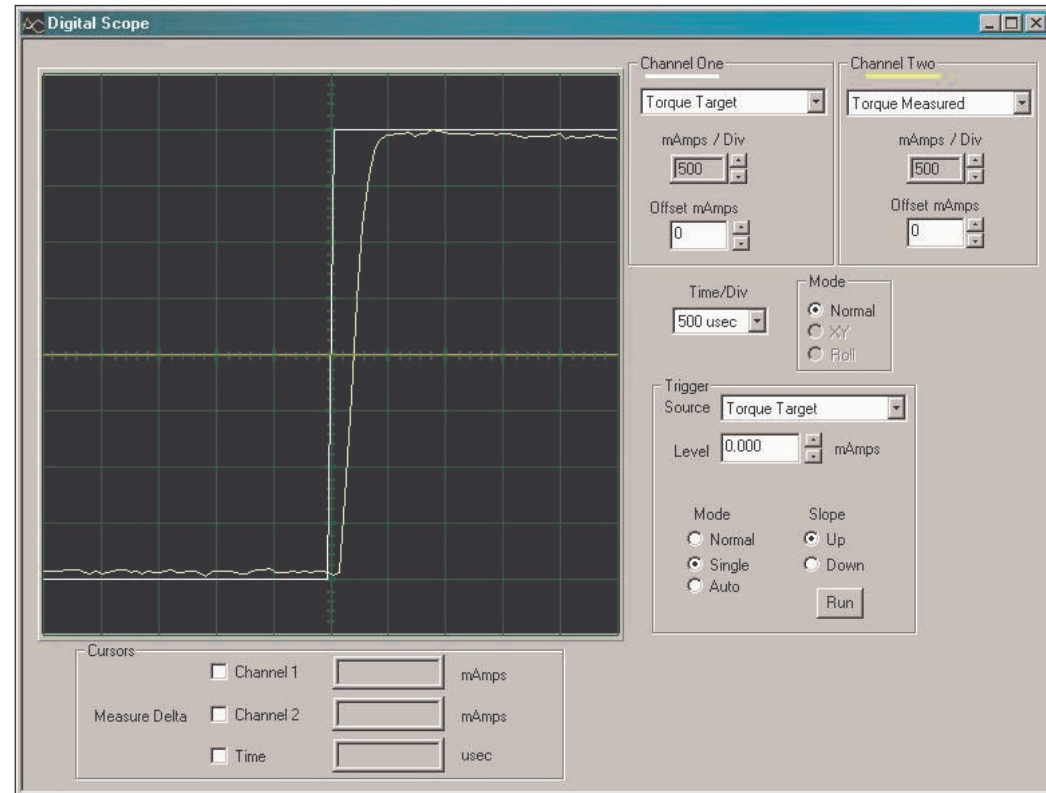
Current Loop Tuning

5. On the menu bar, select Tools → Oscilloscope to open the digital oscilloscope (or click the Oscilloscope icon ) Set up the scope view as follows:
 - a. Use the drop down menu to change the channel 1 signal to *Torque Target*
 - b. Use the drop down menu to change the channel 2 signal to *Torque Measured*
 - c. Change the Trigger Source to *Torque Target* with the Level set to zero.
 - d. Ensure Trigger Mode is *Normal*
 - e. Change Time/Div to either 1 msec or 500 usec.
6. Position the Scope, Waveform Generator, and Current Loop windows such that a majority of all three windows is visible.



Current Loop Tuning

7. Enable the drive by clicking the *Enable/Disable Drive* icon .
8. Use the *Proportional Gain* and *Integral Gain* sliders or arrow buttons to adjust the *Torque Measured* waveform on the oscilloscope and match the *Torque Target* as closely as possible, without current overshoot.
9. On the Waveform Generator, readjust the current amplitude as necessary:
 - a. For contouring applications, use a small signal amplitude (i.e. motion profile rms current.)
 - b. For point-to-point applications, use a larger signal (i.e. continuous current limit.)
10. Readjust *Proportional Gain* and *Integral Gain* settings as necessary.
11. When current loop gain adjustments are complete, click *Not Connected* on the Waveform Generator to remove the command signal from the drive.
12. Disable the drive by clicking the *Enable/Disable Drive* icon .
13. On the Menu Bar, select *Communication* → *Store* (or click the *Store Settings* icon ) , then OK to store parameters to the drive nonvolatile memory.

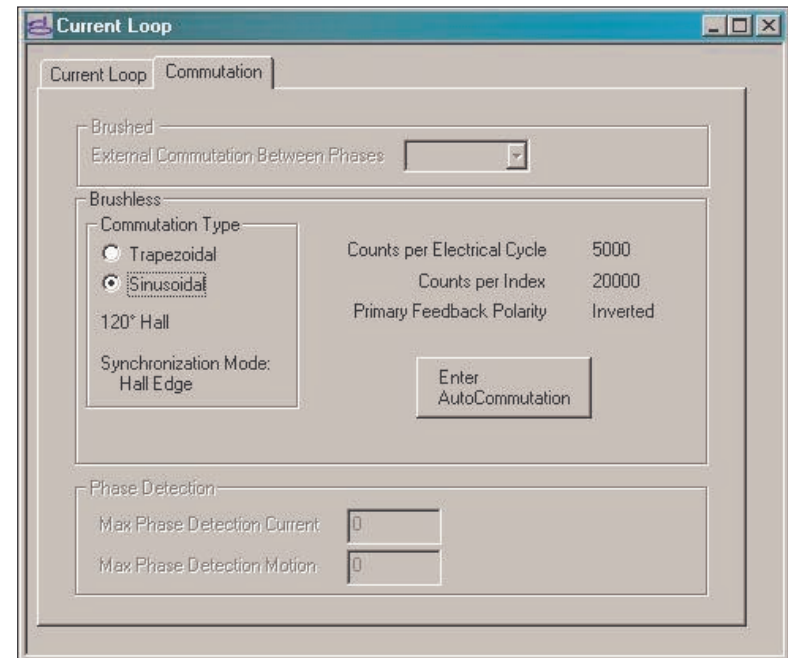


Auto Commutation

For brushless and linear motors with insufficient travel distance (two revolutions plus one electrical cycle for rotary motors, or three electrical cycles for linear motors), proceed to the section labeled **Manual Commutation**. For brushless and linear motors with sufficient travel distance, proceed as follows:

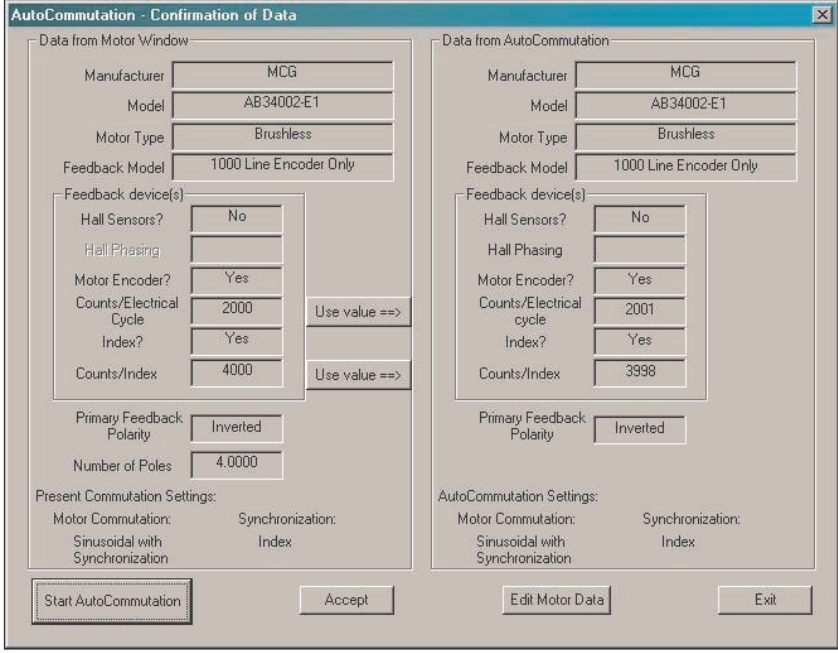
Caution: De-couple motor from any load and secure the motor. Sudden motion will occur.

1. In the Current Loop window, select the *Commutation* tab.
2. Select *Sinusoidal* or *Non-Sinusoidal* commutation, as needed.
3. Verify that indicated *Counts per Electrical Cycle* and *Counts per Index* values are correct. (The *Primary Feedback Polarity* will be determined during Auto Commutation.)
4. If drive is disabled, click the *Enable/Disable Drive* icon  to enable the drive.
5. Click *Enter Auto Commutation* to open the Commutation Data window.
6. Click *Start Auto Commutation* to begin the process.
 - a. During the Auto Commutation process, monitor the distance traveled in each direction.
 - i. Rotary motors will turn two revolutions plus one electrical cycle in each direction.
 - ii. Linear motors will move three electrical cycles in each direction.



Auto Commutation

7. When detection is complete, select whether the motor has moved the proper distance ("Yes"), or has *not* moved the proper distance ("Edit Motor Data").
 - a. If the motor did not move the proper distance, verify the pole count or pole pitch in the Motor Data window. Click OK in Motor Data to return to the Auto Commutation window.
 8. Select the appropriate mode of commutation synchronization.
 - a. For motors with hall sensor and encoder feedback select *Sinusoidal with Synchronization* and select *Hall Edge* for the synchronization signal. Click OK.
 - b. For motors using encoder with index channel only or resolver, select *Sinusoidal with Synchronization* and select *Encoder Index* for the synchronization signal. Click OK.
 9. In some cases, the Auto Commutation results will slightly differ from Motor Data (e.g. *Counts/Electrical Cycle*, *Counts/Index*). In those cases, you may choose between using the value determined by Auto Commutation or use the values from Motor Data ("Use Value").
 10. Click *Accept* to apply the Auto Commutation parameters.
 11. On the Menu Bar, select *Communication* → *Store* (or click the *Store Settings* icon ) , then OK to store parameters to the drive nonvolatile memory.
- Note: For brushless motors with encoder only feedback, the *Phase Detection* function must be utilized whenever power to the drive is cycled or a loss of sinusoidal commutation occurs. See *Phase Detection*.



The dialog box is titled "AutoCommutation - Confirmation of Data". It contains two main sections: "Data from Motor Window" and "Data from AutoCommutation".

Data from Motor Window:

- Manufacturer: MCG
- Model: AB34002-E1
- Motor Type: Brushless
- Feedback Model: 1000 Line Encoder Only
- Feedback device(s):
 - Hall Sensors?: No
 - Hall Phasing: (empty)
 - Motor Encoder?: Yes
 - Counts/Electrical Cycle: 2000
 - Index?: Yes
 - Counts/Index: 4000
- Primary Feedback Polarity: Inverted
- Number of Poles: 4.0000
- Present Commutation Settings:
 - Motor Commutation: Sinusoidal with Synchronization
 - Synchronization: Index

Data from AutoCommutation:

- Manufacturer: MCG
- Model: AB34002-E1
- Motor Type: Brushless
- Feedback Model: 1000 Line Encoder Only
- Feedback device(s):
 - Hall Sensors?: No
 - Hall Phasing: (empty)
 - Motor Encoder?: Yes
 - Counts/Electrical cycle: 2001
 - Index?: Yes
 - Counts/Index: 3998
- Primary Feedback Polarity: Inverted
- AutoCommutation Settings:
 - Motor Commutation: Sinusoidal with Synchronization
 - Synchronization: Index

Buttons at the bottom: Start AutoCommutation, Accept, Edit Motor Data, Exit.

Counts/Electrical Cycle	2000	Use value ==>	Counts/Electrical cycle	2001
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Manual Commutation

In cases where system mechanical limitations prevent complete motion during Auto Commutation (e.g. linear motor with less than three torque cycles of travel), manual commutation must be performed as follows *in lieu of performing the Auto Commutation Procedure*

1. Ensure accuracy of Motor Data, most notably the values for Pole Count (Pole Pitch for linear motors) and Encoder Line Count.

Note: If motor data is incorrectly entered and synchronization is not used, the motor may loose torque or force and eventually stall.

12. For motors with Encoder Only feedback, perform the *Phase Detect* function (see *Phase Detect*).

13. Determine the proper motor phasing as follows:

- a. Select *Tools* → *Waveform Generator*
- b. Set the Waveform Generator to apply a *DC Waveform* into the *Current Loop* with a zero *Offset*.
- c. Enable the drive using the *Enable/Disable* icon .
- d. On the *Waveform Generator*, apply enough *Offset* to start the motor shaft rotating (normally less than 0.25A).
 - i. When phasing is correct, the motor should operate and reverse smoothly in both directions. If the motor runs slower in one direction or if you have to move the shaft to start the motor, the combination is incorrect.
- e. If the motor shaft seizes or runs rough, return the *Waveform Generator* offset to zero and disable the drive using the *Enable/Disable* icon .
- f. Change two of the motor phase wires (e.g. MA and MB) and repeat steps c through e. Proceed through all six possible motor phase combinations.

Note: For brushless motors with encoder only feedback, the *Phase Detection* function must be utilized whenever power to the drive is cycled or a loss of sinusoidal commutation occurs. See *Phase Detect*.

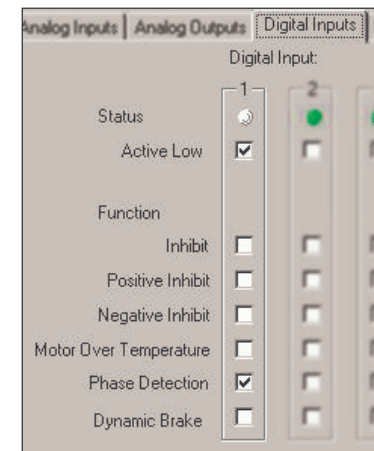
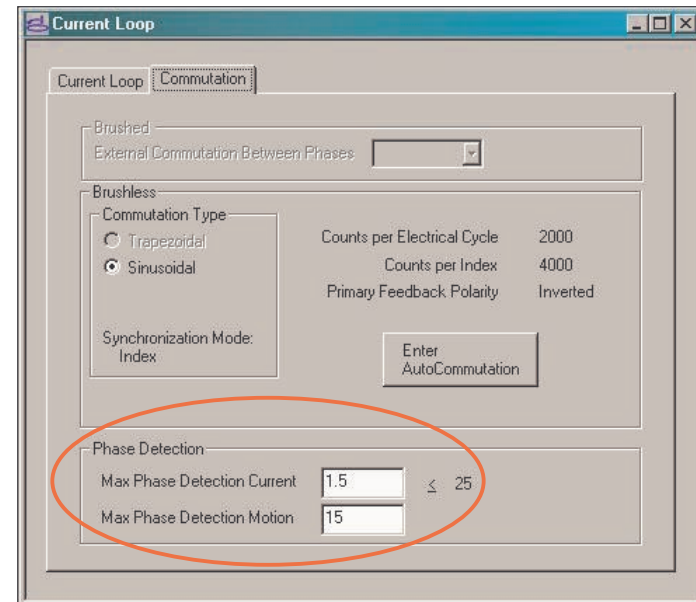
Trial	MA	MB	MC
1	A	B	C
2	B	A	C
3	B	C	A
4	C	B	A
5	C	A	B
6	A	C	B

Phasing Combinations

Phase Detect

If a brushless or linear motor with encoder only feedback is used, the *Phase Detect* function must be used any time the drive is powered up or there is a loss of sinusoidal commutation. *Phase Detect* is used to determine the motor position. *Phase Detect* is activated via a digital input.

1. From the main Block Diagram, open the *Current Loop* window. Select the *Commutation* tab.
2. Enter the *Max Phase Detection Current* (Amps) and *Max Phase Detection Motion* (electrical degrees).
 - a. *Max Phase Detection Current* is empirically determined. For most uncoupled motors, approximately 0.5 to 0.75A will suffice.
3. To activate Phase Detect from within DriveSuite, proceed as follows:
 - a. Enable the drive using the *Enable/Disable* icon .
 - b. From the main Block Diagram, open the *I/O Configuration* window and select the *Digital Inputs* tab.
 - c. Assign any unused Digital Input to the *Phase Detection* function and select the *Active Low* check box for that input.
 - d. Click the *Apply* button.
 - e. To begin the process, clear the *Active Low* check box and click *Apply*. The motor will slightly vibrate back and forth.
 - f. When motion is complete, re-select the *Active Low* check box and click *Apply* to terminate Phase Detect.



Phase Detect

4. To activate Phase Detect via external trigger of a digital input, proceed as follows:
 - a. From the main Block Diagram, open the *I/O Configuration* window and select the *Digital Inputs* tab.
 - b. Assign the appropriate Digital Input to the *Phase Detection* function and, if necessary, select the *Active Low* check box. Click "OK" to close the *I/O Configuration* window.
 - c. Enable the drive.
 - d. Activate the appropriate digital input to begin the Phase Detect process. The motor will slightly vibrate back and forth.
 - e. When motion is complete, deactivate the digital input to terminate Phase Detect.

Velocity Loop Tuning

Note: Velocity loop tuning is dependant on the mechanical load of the motor and, therefore will change with any mechanical system changes. Velocity loop tuning should be performed with the motor installed in the system.

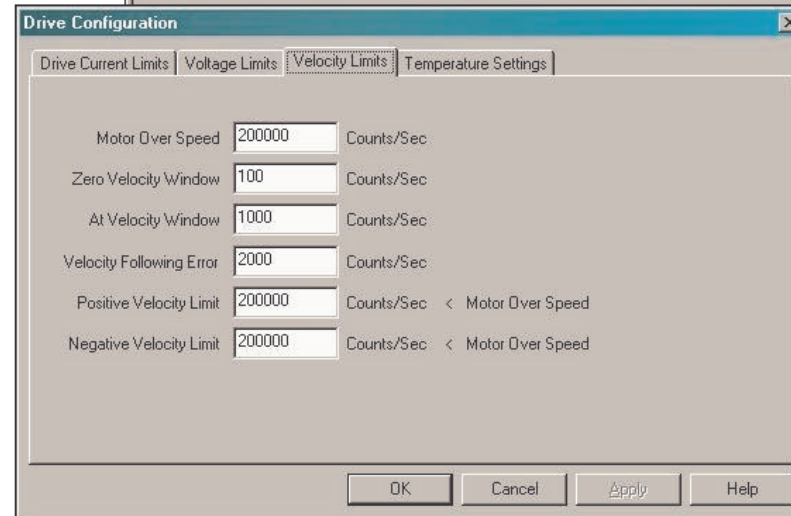
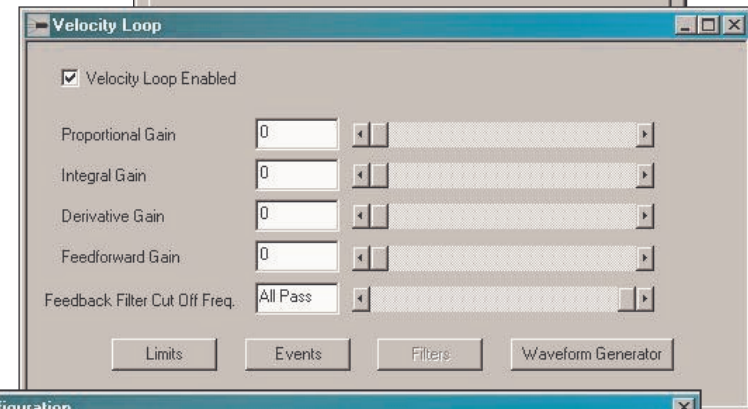
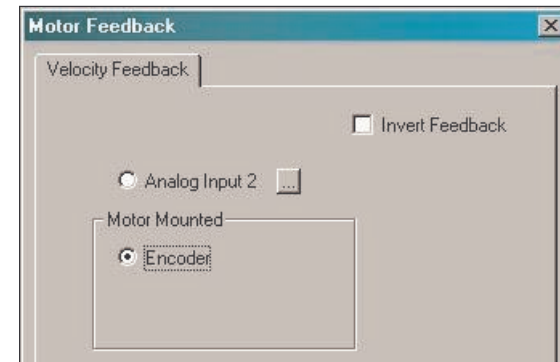
1. Verify that the drive is disabled (🔴).
2. From the Main Block Diagram, open the Feedback window.
3. Select the appropriate velocity feedback source. Click "OK".

Note: If Auto Commutation was performed, the velocity feedback polarity (*Invert Feedback*) has been automatically determined.

4. From the Main Block Diagram, open the *Velocity Loop* window.
5. Select the check box for *Velocity Loop Enabled*.
6. In the *Velocity Loop* window, click the *Limits* button to open the *Velocity Limits* tab in *General Drive Configuration*.
7. Enter values for *At Velocity Window*, *Velocity Following Error*, *Positive Velocity Limit*, and *Negative Velocity Limit*.

Note: Velocity limit values cannot exceed the Maximum Speed rating of the motor (from the Motor Data window).

8. Click "OK" to accept values and close *General Drive Configuration*.



Velocity Loop Tuning

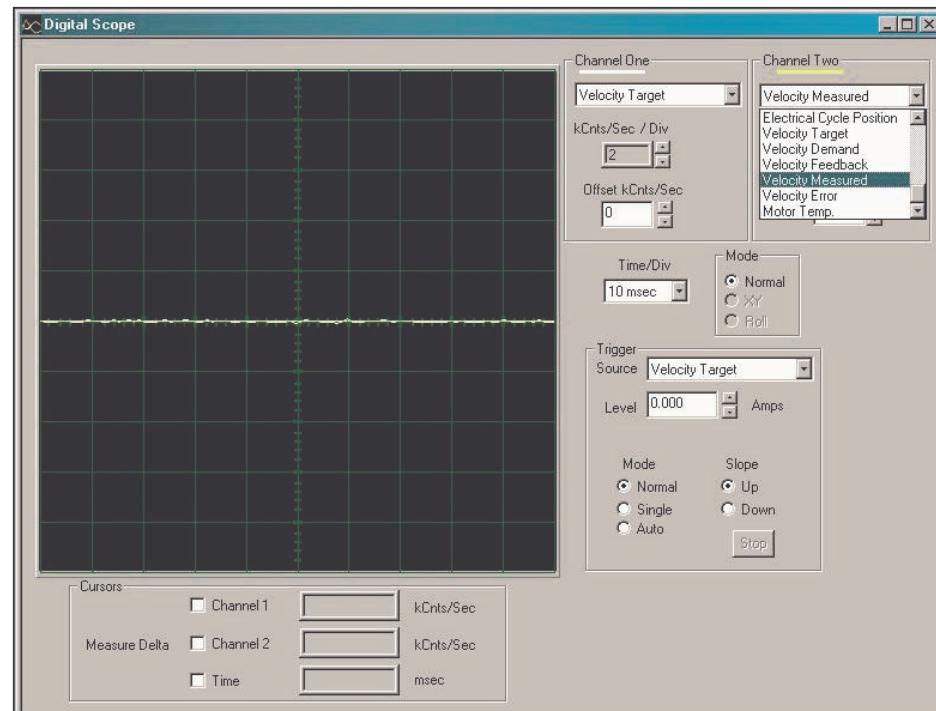
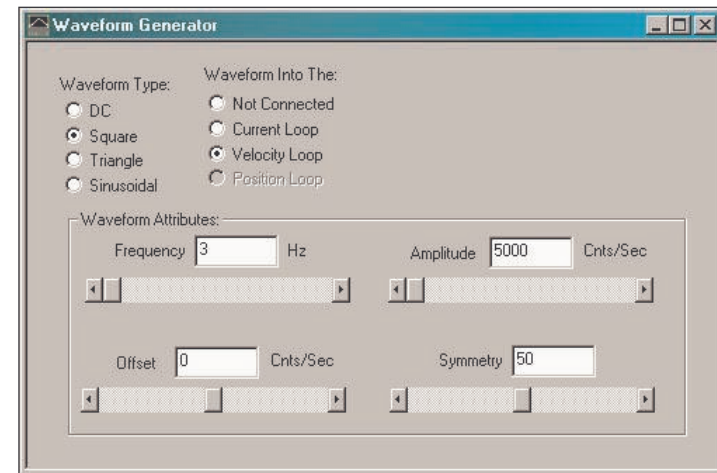
9. In the *Velocity Loop* window, click the *Waveform Generator* button to open the Waveform Generator.
10. With the Waveform Generator, establish a *Square* wave into the *Velocity Loop* with an amplitude of approximately 10% of nominal motor speed. The *Frequency* should be slow enough to achieve the commanded velocity, but fast enough to prevent the system from reaching a mechanical limit (e.g. 2-3Hz).

Note: The accuracy of velocity loop tuning is dependant on the quality and resolution of the velocity feedback. Sources with relatively low resolution or higher noise will require tuning at a higher velocity in order to overcome the effects of these limitations. It is best to experimentally determine the optimum tuning setup.

11. On the menu bar, select Tools → Oscilloscope to open the digital oscilloscope (or click the Oscilloscope icon ) Set up the scope view as follows:

- a. Use the drop down menu to change the channel 1 signal to *Velocity Target*
- b. Use the drop down menu to change the channel 2 signal to *Velocity Measured*
- c. Change the Trigger Source to *Velocity Target* with the *Level* set to zero.

12. Ensure Trigger Mode is *Normal*



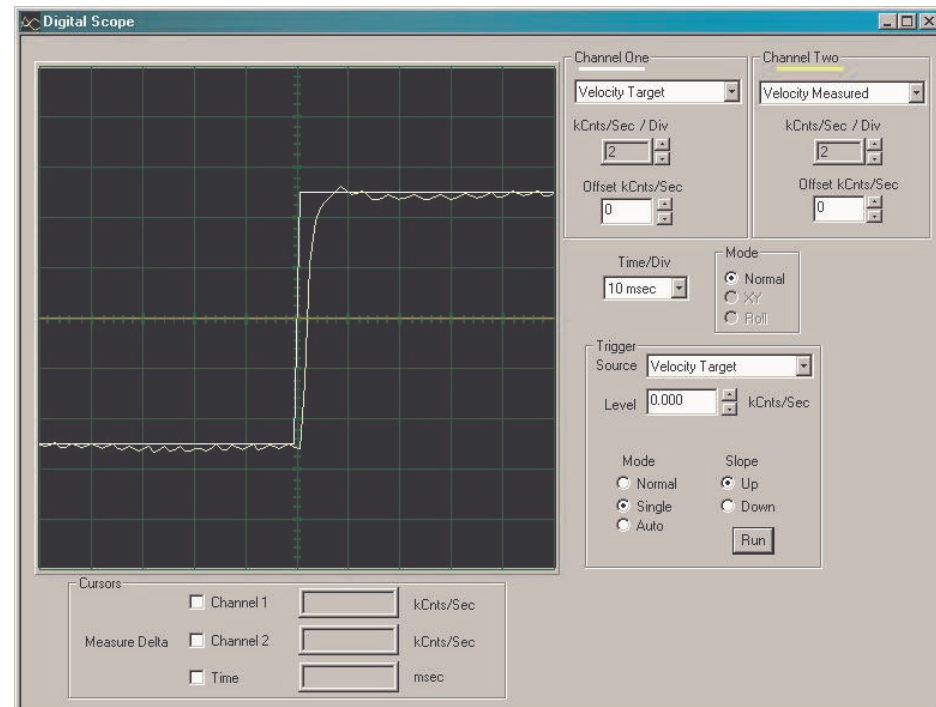
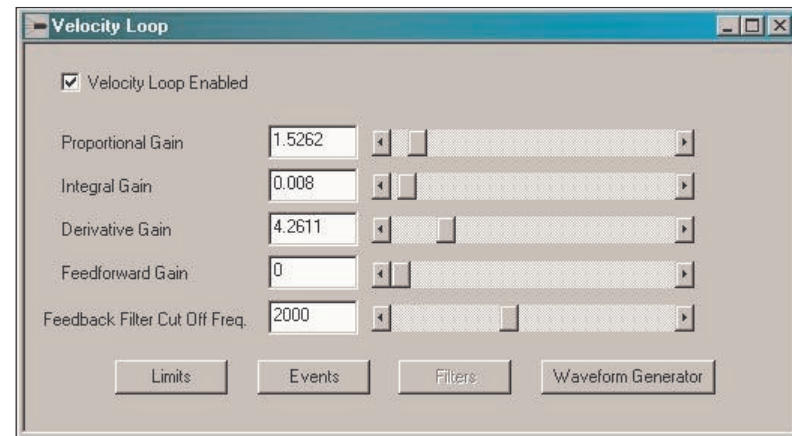
Velocity Loop Tuning

14. Enable the drive by clicking the *Enable/Disable Drive* icon .
13. Use the *Proportional Gain*, *Integral Gain*, *Derivative Gain*, *Feedforward Gain*, and *Feedback Filter Cut Off Frequency* sliders or arrow buttons to adjust the *Velocity Measured* waveform on the oscilloscope and match the *Velocity Target* as closely as possible.

Note: While reducing the value of the *Feedback Filter Cut Off Frequency* can be used to minimize the effects of noise and enhance stability, a higher value will increase system response and bandwidth. The final tuning must be empirically determined as a compromise between the two results.

The effect of the *Feedback Filter Cut Off Frequency* can be seen by comparing the *Velocity Feedback* (unfiltered) and *Velocity Measured* (filtered) signals on the oscilloscope.

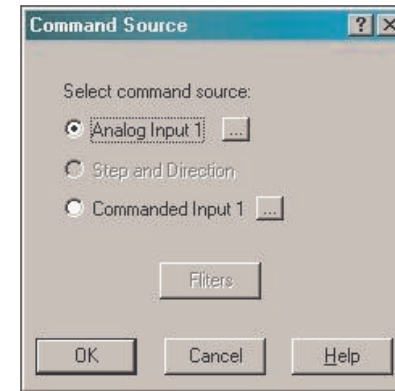
14. When tuning is complete, disable the drive with the *Enable/Disable Drive* icon  and select *Not Connected* on the Waveform Generator.
15. On the Menu Bar, select *Communication* → *Store* (or click the *Store Settings* icon ) , then OK to store parameters to the drive nonvolatile memory.



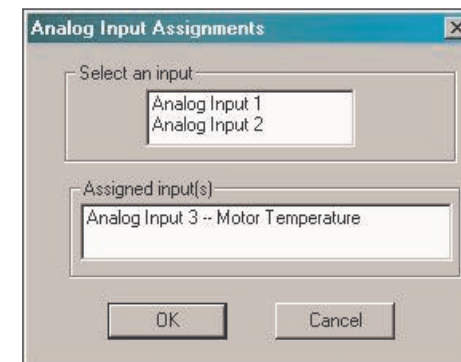
Analog Command Setup

1. Select the analog command source as follows:

- a. In the Block Diagram window, select the *Command Source* block.
- b. Click the Analog Input selection button .

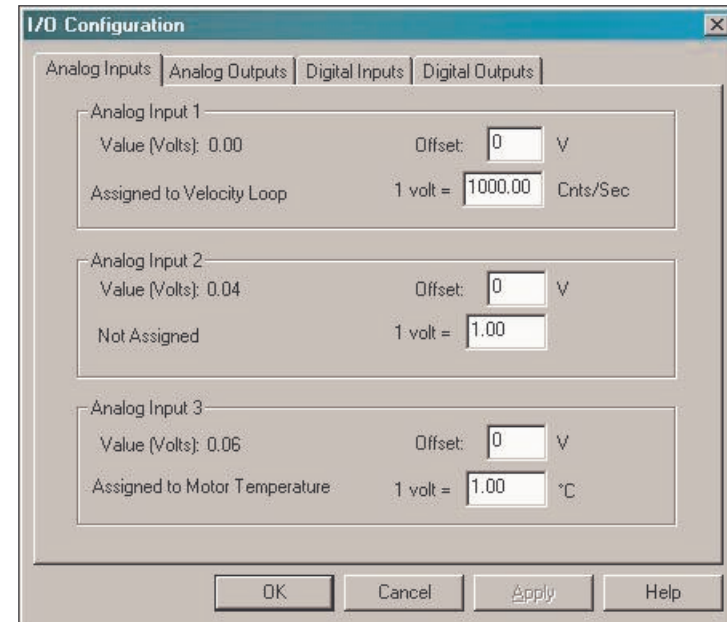


- c. Unassigned inputs are listed in *Select an input*.
- d. Currently assigned inputs are listed in *Assigned input(s)*.
- e. Default selection for current loop command is Analog Input 1 (Differential command on pins 4 and 5 on connector CN2.)
- f. Analog input 3 (pin 14 on connector CN3) is typically assigned to Motor Temperature.
- g. Click OK on the Analog Input Assignments window, then OK on the Command Source window.



Analog Command Setup

2. Set the analog command scaling as follows:
 - a. In the Block Diagram window, select *I/O Configuration*.
 - b. For the appropriate Analog Input, (as previously selected,) set the required scaling (e.g. Amps/Volt, Cts/sec/Volt) and command offset voltage.
 - c. Command polarity can be inverted by changing the sign (+/-) on the Analog Input scaling.
 - d. Click *Apply* or *OK* to set any modified values.
3. On the Menu Bar, select *Communication* → *Store* (or click the *Store Settings* icon ) , then OK to store parameters to the drive nonvolatile memory.
4. The Analog Input may now be used to apply a current or velocity command to the drive.



The **I/O Configuration** dialog box is shown with the **Analog Inputs** tab selected. It contains three sections for configuring analog inputs:

- Analog Input 1:** Value (Volts): 0.00, Offset: 0 V, Assigned to Velocity Loop, 1 volt = 1000.00 Cnts/Sec.
- Analog Input 2:** Value (Volts): 0.04, Offset: 0 V, Not Assigned, 1 volt = 1.00.
- Analog Input 3:** Value (Volts): 0.06, Offset: 0 V, Assigned to Motor Temperature, 1 volt = 1.00 °C.

At the bottom, there are four buttons: **OK**, **Cancel**, **Apply**, and **Help**.

Removal of Startup Disable

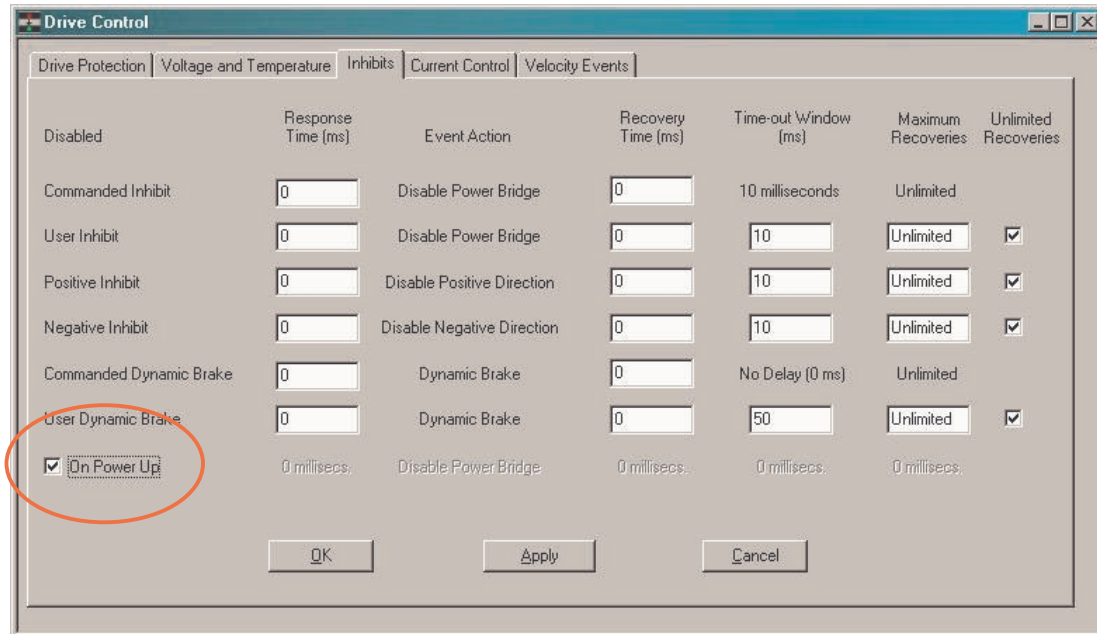
DR100 series Digiflex® drives' factory default setting is to apply a Commanded Inhibit on power-up (Commanded Inhibit can only be controlled via DriveSuite software). To remove this Startup Disable, and operate solely by digital input control of enable/disable, proceed as follows:

1. On the Main Block Diagram, select *Drive Control*.

2. Select the *Inhibits* tab.

3. Select the check box to disable the *On Power Up* inhibit. Click "OK" or "Apply".

4. On the Menu Bar, select *Communication* → *Store* (or click the *Store Settings* icon ) , then OK to store parameters to the drive nonvolatile memory.



The screenshot shows the 'Drive Control' window with the 'Inhibits' tab selected. The window contains a table of inhibit settings. The 'On Power Up' checkbox is circled in red.

Disabled	Response Time (ms)	Event Action	Recovery Time (ms)	Time-out Window (ms)	Maximum Recoveries	Unlimited Recoveries
Commanded Inhibit	0	Disable Power Bridge	0	10 milliseconds	Unlimited	
User Inhibit	0	Disable Power Bridge	0	10	Unlimited	☒
Positive Inhibit	0	Disable Positive Direction	0	10	Unlimited	☒
Negative Inhibit	0	Disable Negative Direction	0	10	Unlimited	☒
Commanded Dynamic Brake	0	Dynamic Brake	0	No Delay (0 ms)	Unlimited	
User Dynamic Brake	0	Dynamic Brake	0	50	Unlimited	☒
☒ On Power Up	0 millisecs.	Disable Power Bridge	0 millisecs.	0 millisecs.	0 millisecs.	

Buttons: OK, Apply, Cancel

Further assistance is available through any of the following:

- DriveSuite Help files
- www.a-m-c.com
- Technical Assistance via phone: 805-389-1935
- Technical Assistance via e-mail: techsupport@a-m-c.com.

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