

DPC-10 Software Operating Manual

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Section 1

About the Software

Test Functions

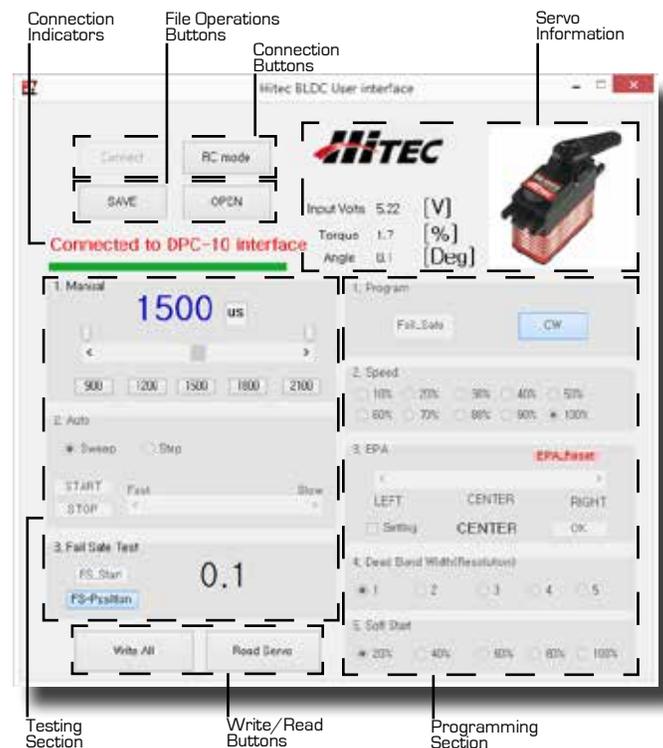
Programming Functions

⚠ WARNING - Failure to follow these instructions can result in an undesired operation of your servo. Please read these instructions before attempting to program your servos.

The DPC-10 BLDC Programming Software gives the user of Hitec brushless servos the unparalleled ability to adjust the parameters of their servos. Additionally users can test their servos, save parameters to a file, load parameters from a file or restore the factory settings from a file.

Testing a servo's function can be critical to completing a successful project. Use these tests to "burn-in" new servos or to check for broken gears and other issues. The DPC-10 is capable of performing the following tests:

1. Servo Travel using one of the following methods:
 - a. Manual Positioning
 - b. Automatic Sweep Positioning
 - c. Step Positioning
2. FAIL SAFE programming position



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Programming Functions

The following functions can be programmed into the HITEC BLDC servos using the DPC-10:

1. FAIL SAFE, On or Off.
2. Direction of Rotation.
3. Travel Speed (Slower).
4. Center, End, and FAIL SAFE Point.
5. Dead Band Width.
6. Soft Start.
7. "Save and Open" Parameter File.
8. Load Factory Default Parameter File.

Section 2

Connections

There are two ways to connect your servo to the DPC-10, Basic Mode and RC Mode.

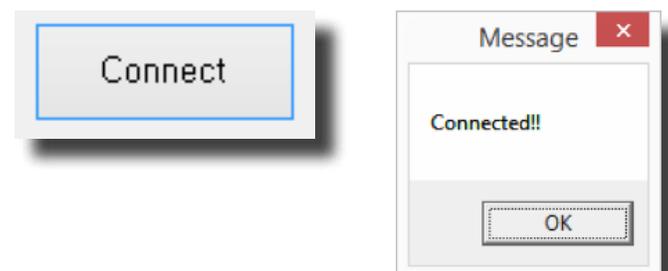
Basic Mode Connection

Basic mode connection allows you to control your servo from your PC. All parameters are set first, then loaded into the servo from your PC. Use your PC to check the functions.

It is recommended that you connect your DPC-10 in the following order for proper operation:

1. Connect DPC-10 to your PC computer.
2. Launch the DPC-10 software.
3. Connect your servo to the DPC-10 servo port.
4. Connect your battery to the DPC-10 battery port.

Now click the "Connect" button in the DPC-10 software. If your connections are correct, you will see the following screen.



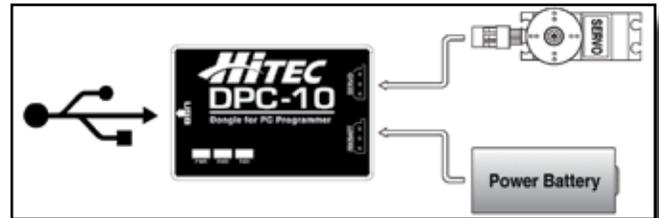
DPC-10

Hitec Brushless Servo PC Programming Interface



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Basic Mode Connection



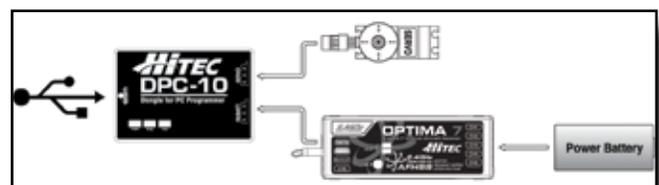
RC Mode Connection

RC Mode connection is useful when setting your servo parameters because it allows you to check the function with your radio just as if you were operating your model. You will still need to use your PC to perform the programming, but you will use your radio to check the functions.

It is recommended that you connect your DPC-10 in the following order for proper operation:

1. Make sure your receiver is bound to your transmitter.
2. Connect DPC-10 to your PC computer.
3. Launch the DPC-10 software.
4. Connect your servo to the DPC-10.
5. Connect your receiver to the DPC-10 and turn on the power.
6. Turn on your radio.
7. Click on the "Connect" button.
8. Click on "RC Mode." Once connected, you will get a message saying "RC mode change is complete."

You can now operate the servo with your transmitter.



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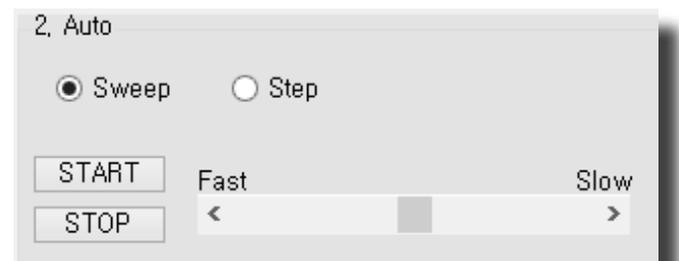
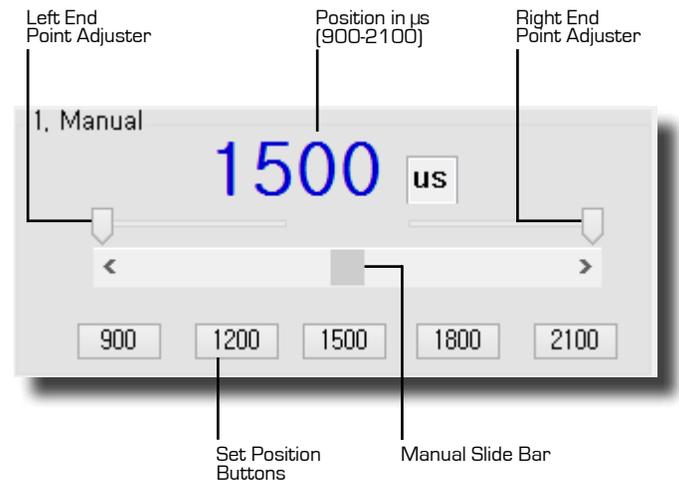
Section 3

Using the DPC-10 Test Functions

Manual Position Test

Click on the Set Position Buttons or move the slide bar with your mouse to manually move your servo's position.

Note: You can use the Endpoint Slide Bars bar to set the end points for both auto sweep and auto step functions as described below.



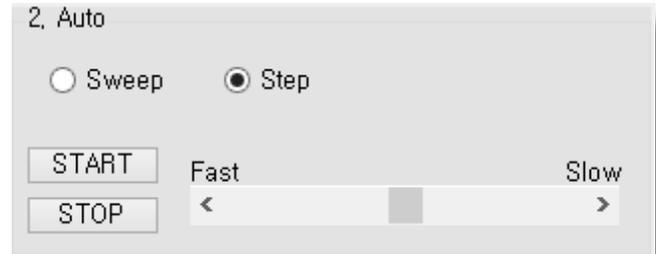
Automatic Sweep Positioning Test

The "Auto-Sweep" function will cycle a servo over and over from end point to end point.

1. Select Sweep on the menu and click the "START" button. The servo will then move from end point to end point within its travel limits.
2. Use the slide bar next to the "START/STOP" buttons to adjust the servo's travel speed.
3. Click "STOP" to end the process.

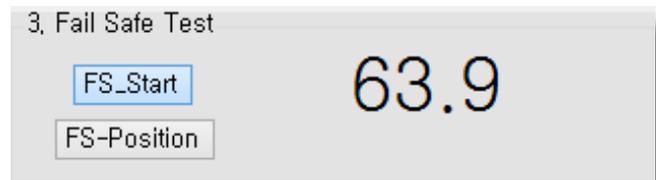
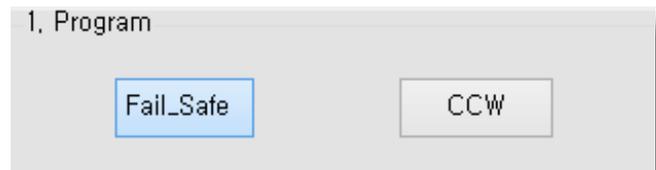
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Automatic Step Positioning Test



1. Select "Step" and click the "START" button. Your servo will start moving from end point to end point in a series of small steps.
2. Use the slide bar next to the "START/STOP" buttons to adjust the servo's travel speed.
3. Click "STOP" to end the process.

Fail Safe Test



This feature tests the user programmed FAIL SAFE point of your servo.

Note: The FAIL SAFE point must be set by the user in the programming section under setting the FAIL SAFE Point. By clicking the "FS-Position" button, the servo will travel to its preset Fail Safe position.

The following functions can be programmed into the HITEC BLDC servos using the DPC-10. It is recommended that you program your servos in the following order:

Section 4

Programming Hitec Brushless Servos

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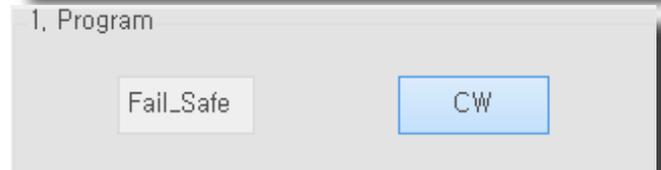
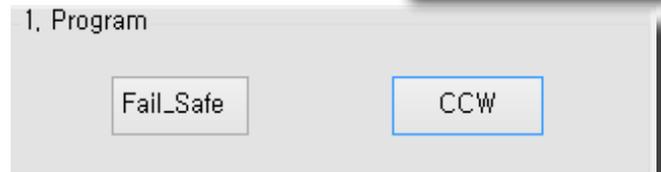
Programming Hitec Brushless Servos

1. Direction of Rotation
2. Travel Speed (Slower)
3. Dead Band Width
4. Soft Start Percentage
5. Center and End Points
6. FAIL SAFE, On or Off

Note: To make your changes permanent you must “write” the programming to the servo by clicking the “WRITE ALL” button. You can do this after each programming step or wait until you have finished all programming.

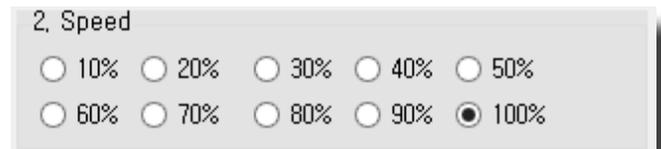


Direction of Rotation



Normal servo rotation based on 900 - 2100 μ s input signal is clockwise from left to right. You can change this to counterclockwise by clicking on the Direction of travel button as shown. The direction is shown as CW for clockwise and CCW for counterclockwise.

Travel Speed



This feature is useful for users who do not have servo speed control functions on their transmitter. Reducing the travel speed is a nice feature to slow down aircraft landing gear retracts. The servo speed

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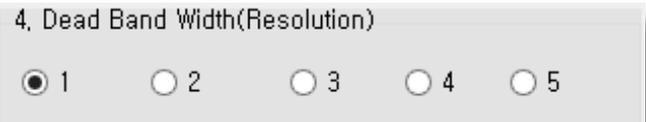
Travel Speed

Dead Band Width

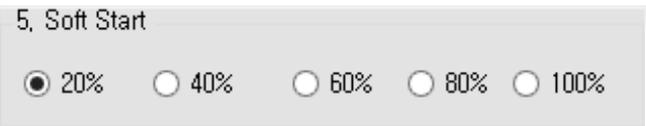
Soft Start Setting

Center and End Point Adjustment Setting (EPA)

function will only slow a servo down. You cannot make a servo travel faster than its rated speed. You can adjust the servo's travel speed in ten proportional steps from a minimum speed (10%) up to its maximum speed (100%).



Some applications, such as using multiple servos on a single control surface, may require you to change the center "Dead Band" to prevent the servos from fighting each other. Users can adjust the center point "Dead Band Width" to one of five choices with 1 being the most sensitive and 5 the least sensitive.



The soft start setting allows users to set how fast the servos react when first powered on. Using a slower soft start setting can prevent damage to your model by slowly moving the servo into position. Default setting is 20% (slowest). There are five settings from 20% to 100% which is an instantaneous reaction.

Note: This setting has no affect on the reaction speed of the servo once it is powered up.

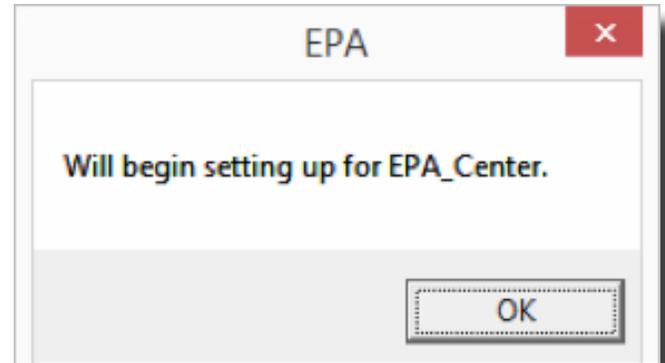
With the EPA setup, users can customize the center point and left/right servo travel end points. This can be helpful to fine tune your model's control surfaces. To set the Center and Endpoints, click on the "Setting" box under the EPA programming section.



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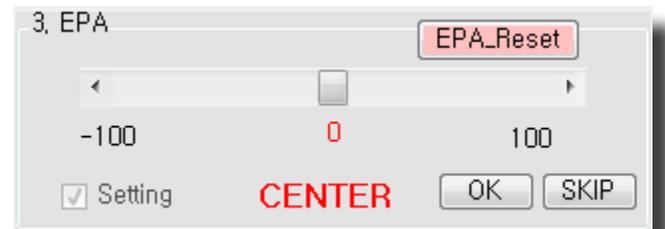
Center and End Point Adjustment Setting (EPA)

NOTE: The numbers represented in the EPA adjustments are shown as percentages. With center at 0 and left and right endpoints at 100%, the servo will move approximately 100 degrees in each direction. It should also be noted that the left and right adjustment values will change if the center point is adjusted.



The first setting is the center point. If you don't want to change the center point, click "skip" otherwise you can adjust the center point using three different methods.

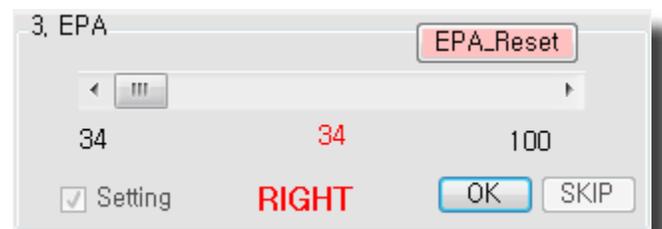
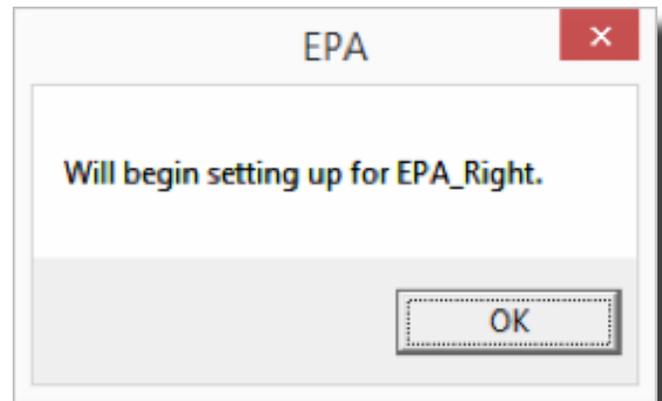
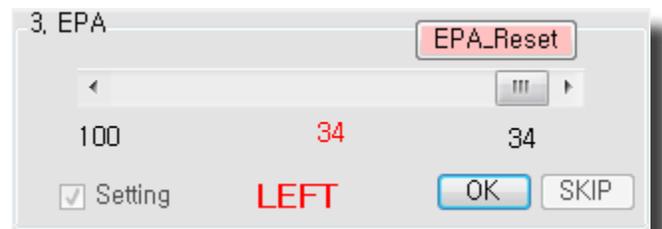
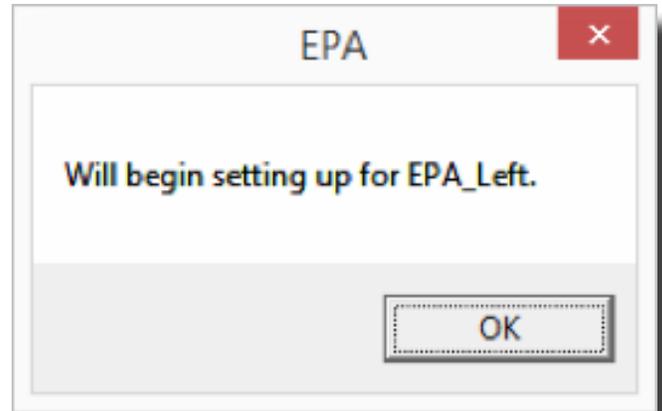
1. Click on and move the slide in the adjustment bar to move in larger steps.
2. Click the arrows "<>" on each end to make the smallest adjustments.
3. Click on the white space of the adjustment bar to move it in 10 point increments.



When you have reached your desired center point, press "OK" to continue. Now you will set up the left and right end points. Click "OK" when prompted by the pop-up screens. The left and right end points are adjusted in same manner as the center points with the exception that clicking on the white space of the adjustment bar results in movements of 10 point increments and clicking the < and > arrows move in increments of 0.5%. Once you have set your left end points click "OK" to set the right end points then click "OK" again to complete the EPA setup process.

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Center and End Point Adjustment Setting (EPA)

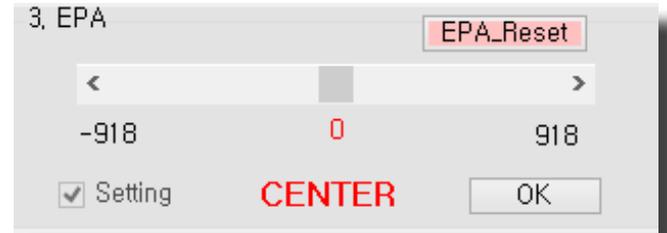


Resetting EPAs

To reset your EPAs to the factory defaults click on the "Setting" box under the EPA programming section. Then click "EPA_Reset."

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Resetting EPAs

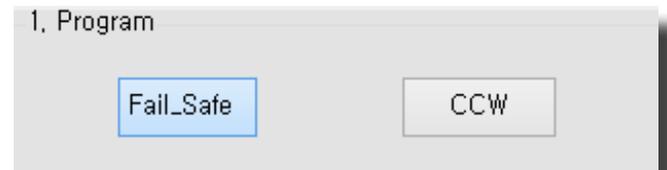


Fail Safe Position

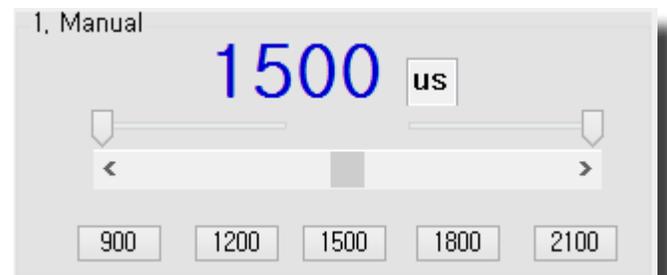
By choosing to use the Fail Safe function you will need to set a preprogrammed travel point that the servo will travel to in the event the servo loses signal from the receiver.

⚠ WARNING – Program the Fail Safe point after setting the end and center points otherwise it will change when you make those settings.

To set the Fail Safe point first, click on the “Fail Safe” under the Program section.



Next move your servo to the desired position by using the Manual positioning section as shown. You can use any of the preset points or you can move it in one of three other ways, either in 1 μ s steps by clicking on the arrows “< ->”, in 50 μ s steps by clicking on the white space of the adjustment bar or with the slide in the adjustment bar.



Once you have your desired Fail Safe position, click on the FS-Position button Fail Safe Test as seen in the illustration.

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Fail Safe Position

Section 5

Saving and Loading Files/ Restoring Default Files

Saving Files

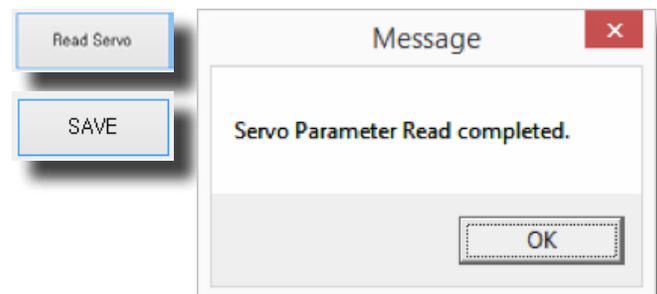
Loading Files



Note: Remember to “Write All” your settings to your servo before closing the DPC-10 software and disconnecting your servo. Failure to do so will result in the loss of your programmed settings.

With the DPC-10 software you have the ability to save and load servo parameter files. This is helpful when needing to set up multiple servos with the same parameters. The DPC-10 software also has the ability to restore the factory defaults file in the event the user setup doesn’t operate correctly. The following details how to use these features.

Once you have completed your servo setup and written the setup to the servo, click on “Read Servo.” Next click on “SAVE” to open the save file dialog box. Navigate to the location that you want to save your file to, enter a name for your servo and click “Save.” You have successfully saved your servo parameters to a file.



To load a parameter file click on “OPEN”, navigate to the location where you stored your file and click “Open.” You will get the “File load has completed” prompt. Click “OK.” Now click “Write All” to load the setting onto the servo. Once you get the “Write All

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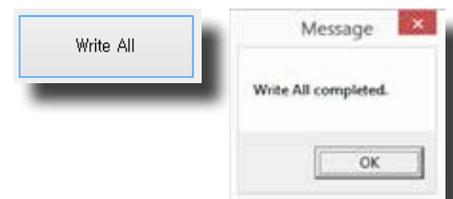
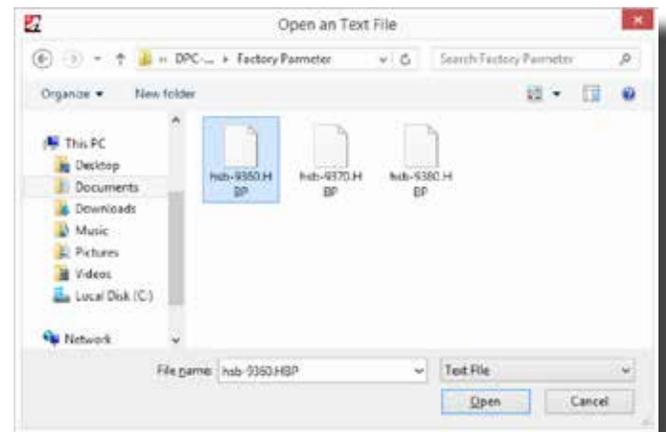
Loading Files

completed” message, click “OK.” The parameters have been written to the servo.



Restoring Factory Defaults

To restore the servo to the factory default setting, click on “OPEN” and navigate to the directory where you unzipped the DPC-10 software download. In the directory “Factory Defaults,” you will find the files for each servo model. Click on the file that matches the servo you want to restore and click on “Open.” Once you get the file load has completed message, click “OK.” Now click “Write All” to load the setting onto the servo. Once you get the Write All completed message, click “OK.” The default parameters have been written to the servo.



Help is available from the Hitec office through phone support and e-mail. Our US office is generally open Monday thru Friday, 8:00AM to 4:30PM PST.

Phone: (858) 748 - 8440

E-mail: service@hitecrcd.com

Web: www.hitecrcd.com

⚠WARNING – Restoring a factory default file other than the one specifically made for your servo may result in undesired operation.