

**Slimmer, Lighter
and More Affordable...**

Hitec Digital Servo Programmer & Servo Tester for ALL Servo Brands

HFP-25

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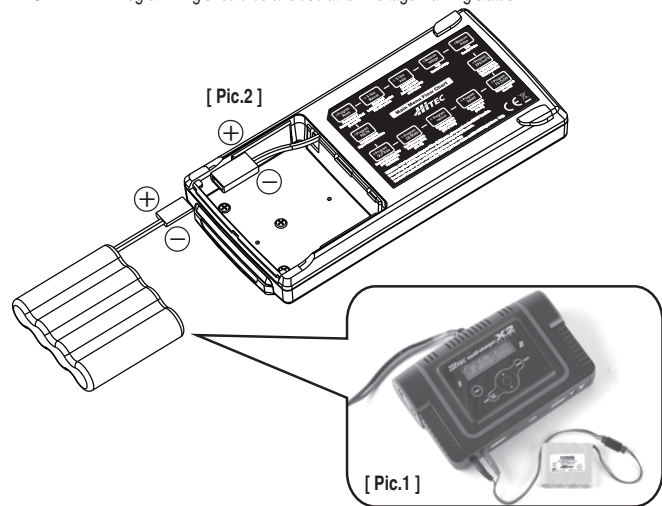
Welcome to the world of high performance servo technology. Using your new servo tester and Hitec digital servo programmer, it will allow you to program the functions of Hitec digital servos. Additionally you can test any brand of transmitter for the pulse sent to the receiver and any servo for voltage and proper movement. HFP-25 is made for more affordable but it follows in the previous models great features. This manual is split into two sections, the first being the Hitec digital servo programming section, followed by the information on how to test any brand of servos.

Powering the HFP-25

- HFP-25 uses 4 cell 4.8V NiMh rechargeable battery pack to power the test and programming functions. (The rechargeable battery's capacity should be more than 1300mA for optimal operation)
- HFP-25 does NOT support charging port. Therefore, remove the battery from HFP-25 and charge it directly using any peak charger capable of charging 4 cell 4.8V at about 0.6A-1.0A. (See pic.1) (Hitec RX NiMh battery pack : #54117 or 54121)
- Pay close attention to the POLARITY of the battery when it is inserted to the HFP-25. (See pic.2)

Low Battery Warning

- If the programmer's voltage becomes below 4 volts, the programmer's LCD screen will flash "LOW BATT". Programming should be avoided at low voltage warning status.



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General Hitec Servo Information

Pulse Data

All Hitec servos require 3-5V peak-to-peak square wave pulse.
Hitec digital servos require 0.8-5V peak-to-peak square wave pulse.
Pulse duration is from 900µs to 2100µs with 1500µs as center.
The pulse refreshes at 50Hz (20ms).

Voltage Range

Most of Hitec Servos can be operated within a 4.8V-6.0V range.
The HS-45, HS-50 and some feather sized servos operate exclusively with 4 Ni-Cd cells (4.8 volt).

Wire Color Meanings

On all Hitec servo wires are in three different colors: Black, Red, and Yellow.
The Black wire is 'ground', the Red wire (center) is 'power' and the yellow wire is 'signal'.

Direction of Rotation

All Hitec servos set to rotate Clockwise (CW) as factory default.

The following is the function flow chart of the Tester/Programmers features;

This instruction manual is formatted to follow the tester/programmer software flow.
To access the features listed below; the user would turn on the device and scroll through the screens using the UP/R or DN/R button.

Text in the LCD display

1. Program Reset
2. Program RSLTN
3. Program OLP Rate
4. Program DB Width
5. Program cw/ccw
6. Program Speed
7. Program FS OnOff
8. Program EPAneuFS
9. Measure Pulse
10. Measure Voltage
11. S-Test Auto
12. S-Test Manual

Function

- Reset to factory default
- Select High or Low Resolution
- Protect Motor from Overrunning (Overload Protection)
- Sets the dead band width
- Sets the direction of rotation, clockwise / counter clockwise
- Slows or speeds up the rotation speed
- Turns the Fail-Safe on or off
- Sets the End points, Neutral point and Fail-safe point
- Measures the receiver's pulse to the servo
- Measures the receiver's voltage to the servo
- Automatic Servo movement test program
- Manual Servo movement procedure

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Section One: Hitec Digital Servo Programming

Hitec Digital Servo General Information

Hitec digital servos can be used "out of the box" without any complicated programming procedure.

Also, Hitec expanded the capability of our digital servos to include the ability to program your own unique performance specification parameters.

Many of you will have modern computer radios that will allow you to program most of these functions; however, some features, like dead band width, are only programmable by using the servo tester/programmer device.

Programmable functions of the Hitec digital servos

- Factory Default Reset
- Dead Band Width Adjustment
- Direction of Rotation
- Speed of Rotation
- Fail-safe On/Off
- End Position
- Neutral Position
- Fail-safe Position Preset

*NOTE

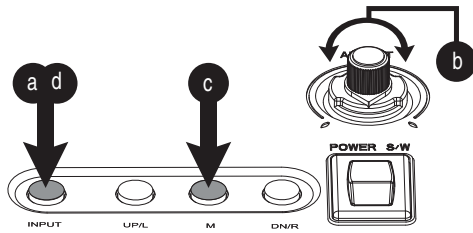
1. Resolution control function is used for HS-7XXX Digital Servo Series Only.
2. Overload Protection Rate is used for HS-7XXX Digital Servo Series and HS-5055, 5056, 5065, 5082 and 5085MG Digital Servo Only.

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- Press the INPUT button to enter, and the programmer will search for the settings; X:Y will appear with X being the current setting and Y is adjustable from Off to 50%.
- Use the adjustable knob to select Y, the reduction rate.
- Press the M button to change the setting.
- Press INPUT to save and exit.

***NOTE**

* This function is used for HS-7XXX servo series and HS-5055, 5056, 5065, 5082, and 5085MG only. Factory default is off.

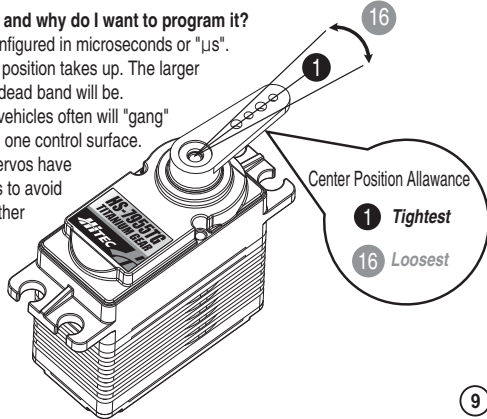


4. DB Width (Dead Band Width):

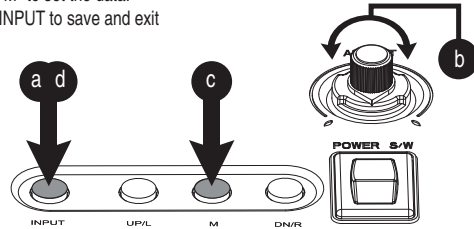
This feature will allow you to change the width of the center position between 3µs and 48µs.

What is dead band width and why do I want to program it?

The dead band width is configured in microseconds or "µs". It is the "space" the center position takes up. The larger the number, the wider the dead band will be. Large planes and surface vehicles often will "gang" several servos together on one control surface. It is important that these servos have matched dead band widths to avoid having them "fight" each other at the center position.

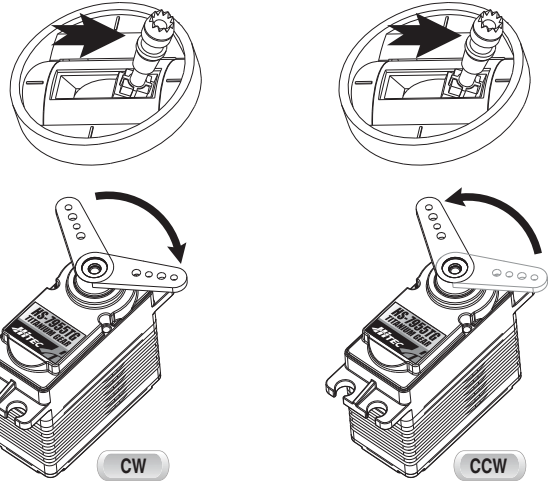


- To enter the mode press the INPUT button and the HFP-25 will search for the settings; X:Y will appear with "X" being the current setting and "Y" is adjustable value from 1-16. The value of "1" is about 3µs and is the smallest dead band width setting available.
- Use the knob to change "Y" (the new value). "1" is the tightest dead band width setting and provides the best centering.
- Press "M" to set the data.
- Press INPUT to save and exit

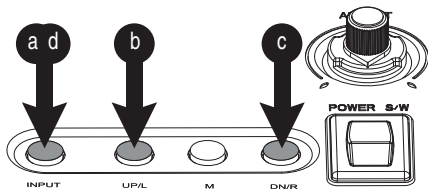


5. Rotation:(Servo reverse)

Select the servo rotation from either clockwise or counterclockwise.



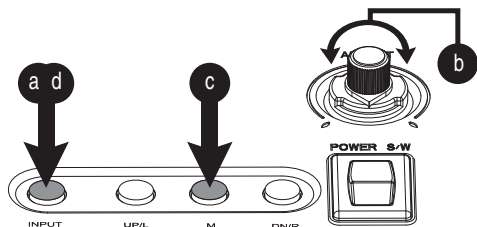
- To enter press the mode the INPUT button and the programmer will search for the settings; ccw or cw will appear.
- Press UP/L to set the servo to cw (clockwise).
- Press DN/R to set the servo to ccw (counterclockwise).
- Press INPUT to save and exit.



6. Speed:

The programmer allows you to slow the rotation speed of the digital servo only.

- press the INPUT button to enter the mode. X:Y will appear with "X" being the default speed value, and "Y" being the adjustable speed value. "1" is being the slowest and the servos default value "64" being the fastest. *The factory default value is always the servos' fastest possible speed.
- Use the knob to adjust the value "Y"
- Press "M" to set the value.
- Press INPUT to save and exit



! Additional Warning on Early Production Digital Servos!

Digital servos built prior to October 2001 will always show a default value of "40". The actual speed can be between 28 and 40 based on the following chart:

Model Number	Actual max speed	No speed change zone
HS-5625MG	22	22-64
HS-5645MG	12	12-64
HS-5925MG	16	16-64
HS-5945MG	10	10-64
HS-5735MG	10	10-64

While the "X" value may show "40" the actual speed value could be less, based on the above chart. so drop the "Y" value below the "actual maximum speed" as shown on the above chart to slow the servo down.

7. FS On/Off (Fail-safe):

Turn the fail-safe function on or off

What is the fail-safe function and how is it used?

Traditionally a PCM radio system would allow the user to program a "fail-safe" position that selected servos would revert to if the plane or surface vehicle suffered a loss of signal from the transmitter. With your programmer and a Hitec digital servo you can program a fail-safe point into the servo and have the benefits of fail-safe without the expense and drawbacks associated with PCM technology.

Suggested uses would include dropping the throttle servo to idle; slight deflections from the neutral point for aircraft ailerons and or elevators. The following will arm or disarm the fail-safe parameters you can program in step 6.

- Press the INPUT button to enter the mode. HFP-25 will search for its current setting; it will show you if the fail-safe feature is turned "on" or "off".
- To turn the fail-safe feature "on," push the DN/R button. To turn it "off", push the UP/R button. *The factory default setting is always "off".
- Press INPUT to save and exit.
- Go to the EPANEUFs screen to set the fail-safe position. (See step 6)

