# HYPERION ATLAS DIGITAL SERVO – PROGRAMMING MANUAL

**STEP #1 – HP-AT-PRGUSB ADAPTER - USB DRIVER INSTALL:**

\* Download the USB Adapter drivers:  **http://media.hyperion.hk/dn/pc/prgusb-drv.htm**

**WINDOWS INSTALL INSTRUCTIONS** for the Windows driver sets:
1) download the executable file to any folder on your computer, and double-click the file to begin installation
2) If warned about Windows Compatibility, click OK (or RUN). The drivers ARE certified.
3) Take note of the default storage path for the driver files
   (typically C:\Silabs\MCU\CP210x\WinXXX….)
4) Connect PRGUSB Adapter to an open USB Port on your PC

DEPENDING ON YOUR SYSTEM, DRIVERS MAY AUTOMATICALLY INSTALL AT THIS POINT.  If not, then…

5) Windows should pop up an ADD HARDWARE dialog box. To keep things simple, we will tell windows where to find the drivers… The below is for XP and similar, but the process will be the same for all Win OS, even if wording differs.
 \* If asked, "Connect to Win Update?", choose "Not this time"
 \* Choose "Install from Specific Location" at next screen, then enable the BROWSE dialog box and browse to the store folder for the files (again, C:\Silabs\MCU\CP210x\WinXXX…. by default).
\* When you have selected the proper folder, the OK button is enabled. Click it.
\* The USB Driver will install
\* After USB Driver is installed, the same process repeats to create a virtual COM port.  Repeat the driver selection process (made easier now, as Windows remembers the previous path to the files)

Now, the LED on the PRGUSB chip should be GREEN.  If it is still RED:

\*Check Windows Device Manager, PORTS section, to see that the COM port (CP210x ) is loaded properly in windows.
\*Check Windows Device Manager, USB section, to see that the USB Driver (CP210x Composite Device) is loaded properly in windows.
\*On some systems, you may need to always connect the USB Adapter to the same USB Port. Try each USB Port to check this.

[We do not support PC setup questions, so ask a friend if you get stuck, please.]

**STEP #2 – ATLAS COMMANDER PROGRAMMING SOFTWARE INSTALL:**

\* Download latest software here:
**http://media.hyperion.hk/dn/pc/sercom.htm**



For Windows 98SE, XP, 2000 - Double-click the Install File and follow the prompts

For Windows VISTA32, right-click the file and choose: "Run as Administrator".

If VISTA reports missing files or some other error when you start the software for the first time, download and RUN this batch file (zipped format):
**http://media.hyperion.hk/dn/pc/ware/vistabat.zip**
The batch file simply insures that all files are correctly registered with Vista, which is something that Vista fails to do properly at times…
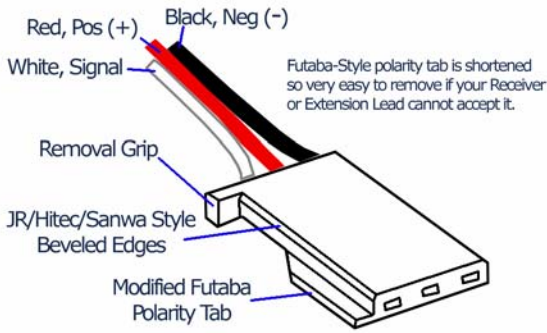
**STEP #3 –CONNECTION OVERVIEW**

The AT-PRGUSB Adapter has exposed, non-polarized pins.  **Caution!  (1) Do not allow the pins to short against a conductive surface while connected to PC.  (2) Do not connect a servo to the adapter in reverse polarity.** The servo is protected against reverse polarity connections, but the USB adapter cannot be protected, and will be damaged. Such damage is NOT covered by warranty.

We strongly suggest that all users obtain a Hyperion Servo Extension cable (such as 30cm HP-WR-002) or even better use a modified "Y" cable as shown on next page (HP-WR-013).  By keeping the extension (or Y-cable) attached to the USB adapter at all times, you eliminate the possibility of shorting and reverse polarity connections.

ATLAS Servos can be connected directly to the USB adapter (or by extension cable), and programmed via PC using the USB power supply.  However, you may NOT "load" the servo in any way, in this case.  **DO NOT install the servo in a model with servo connected to control surfaces (such as ailerons, etc), and attempt to program, unless you have modified a "Y" connector as shown next page, and connected a 4.8V battery to power the servo.** Failure to heed this advice can damage your USB Adapter, and possibly even your PC.

## Hyperion Atlas Servo Connector



Red, Pos (+)    Black, Neg (−)
White, Signal

Futaba-Style polarity tab is shortened
so very easy to remove if your Receiver
or Extension Lead cannot accept it.

Removal Grip

JR/Hitec/Sanwa Style
Beveled Edges

Modified Futaba
Polarity Tab

See the diagram for Hyperion ATLAS Servo connectors, left, and the pin labels on USB Adapter diagram below:

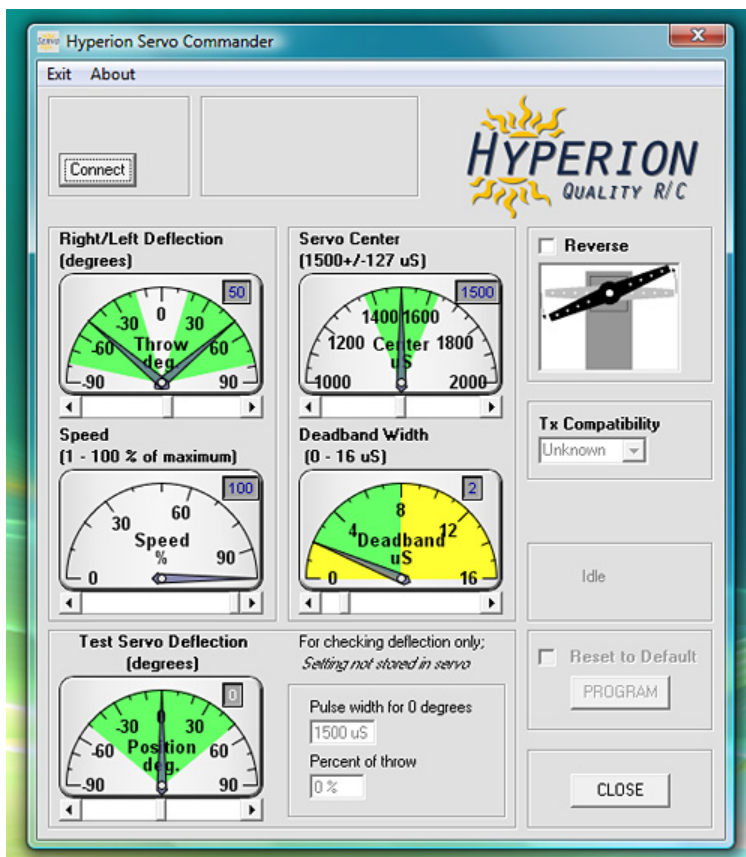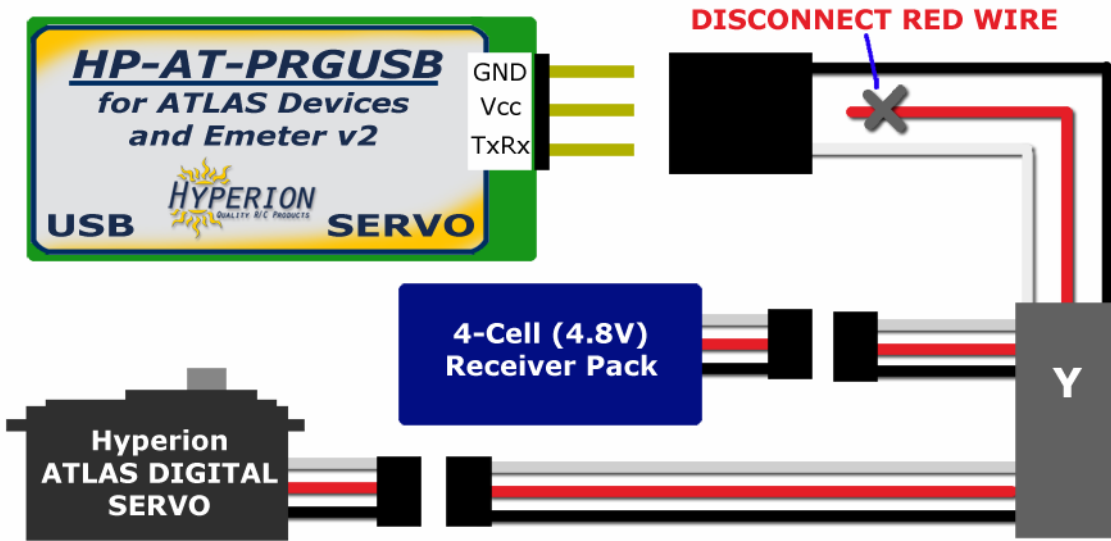**The servo MUST be connected to USB Adapter correctly.**
**GRD > BLACK wire**
**Vcc > RED wire**
**Tx/Rx > WHITE wire**

As mentioned, you may connect an Atlas Servo directly to USB adapter and program the servo, **but only with servo disconnected from the model.** Instead, it is much better practice to use a Hyperion "Y" cable (HP-WR-013) and modify it by disconnecting the RED wire from the connctor at USB Adapter side. In this case, you insure that the USB Adapter is never overloaded, and you can freely program and test servos while installed and working in the model.

A 4.8V battery (to 6.0V Max) is used to supply power to the servo, relieving the USB system from all loads. You may choose to also install a switch harness (HP-WR-015) between the Battery and Y-harness to allow easy power ON and OFF of the system.

## IMAGE BELOW SHOWS "BEST PRACTICE" WIRING CHOICE



**STEP #3 –PROGRAMMING**



The Servo Commander software will appear as left, initially.

**Always follow this order of connection:**

1) Connect USB Adapter to PC.
   Check that Green LED in ON

2) Start Servo Commander Software

3) Connect ATLAS Servo to USB Adapter

4) Click the "Connect" button

The software will automatically poll all COM ports on the computer, looking for the ATLAS Servo. This can take as long as 10 seconds, so please be patient.

When the servo is found, the software will appear as in **next image** below, showing a Green "LED" and the ATLAS firmware revision of the servo.

If the software fails to find a servo, a dialog box will pop up with troubleshooting tips.
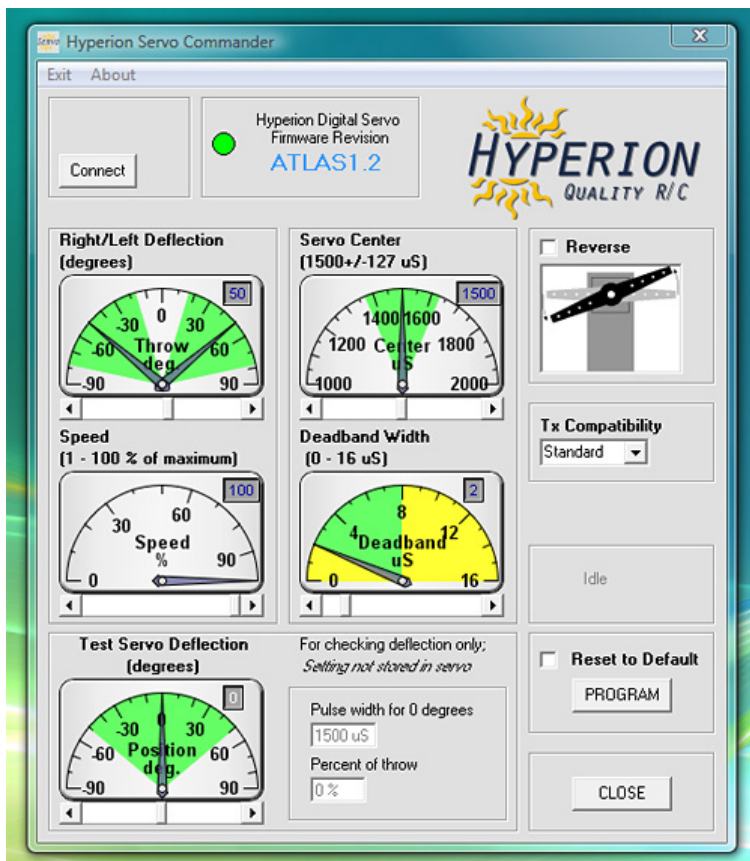
Adjustments for DEFLECTION, SERVO CENTER, SPEED, and DEADBAND are made by clicking on the "slider" at the center and moving right or left to your desired value, which is shown at top right of the control display for each setting. For small adjustments, you may single click the arrows to each side of the slider buttons.

To REVERSE the servo, click on the checkbox.

To set compatibility with your Transmitter brand, click the arrow and choose brand from the drop-down box. "Standard" returns you to Hyperion Default for pulse widths and centering. The servo does not store this setting. It only affects the values available for programming, and sets the CENTER function to match each brand of transmitter. As a result, on reconnection of a servo, this box will display "Unknown", but CENTER will remain set according to your previous selection.

After satisfied with your selections, click the PROGRAM button to store settings in the Servo.

TEST SERVO DEFLECTION does not store any settings in the Servo. It simply allows you choose an angle of deflection and, after pressing the PROGRAM button, see how far the servo will move at that setting.

To RESET the Servo to ATLAS Defaults, Click the RESET TO DEFAULT checkbox, and click the PROGRAM button.

**Reverse:** Changes the direction of rotation of the servo for a given stick movement direction. Reverse is particularly useful when setting up two servos on a y-harness to a **single receiver channel**, such as with separate elevator halves, for example.

**Servo Speed (%):** You may slow the servo to achieve the selected position at a rate as slow as 1% of its normal speed of rotation, which is VERY slow indeed. This feature allows the servo to be used in applications that would normally require either an additional 'servo slow' or pneumatics to actuate features such as hatches, doors and landing gear.

**Rotation (degrees):** By default most servos, including ATLAS, have 45 degrees rotation per side (90 degrees total). You may program ATLAS for as little as 15 degrees or as much as 70 degrees rotation per side. (30~140 deg total) Note that ATLAS may safely be driven - using Transmitter travel and mixing adjustments - to a max of 175 degrees total rotation.

**Servo Center (%):** The servo centre feature allows wide adjustment (approx +/- 25%) of the servo arm 'center' position in response to the neutral signal from a transmitter. This is useful to adjust trim offsets in servo installation, so that your transmitter trims can be set to neutral and therefore retain maximum in-flight trim adjustment capability.

**Tx Compatibility:** This feature in the ATLAS Servo programming Software allows you to choose common Transmitter brands, such as JR, FUTABA, HITEC, MULTIPLEX, and "Standard". When you choose "Futaba", for example, the Programmer automatically sets Servo Center to match the default Futaba pulse width for Center. So the servo will properly center when you turn on your Futaba transmitter.

**Servo Deadband (μS):** Dead Band is the range of signal over which the servo does not change position in response to a change in signal. The default value is 2μS and can be adjusted to 16μS max. This is useful for applications where two servos are both operating one control surface, and avoids one servo 'fighting' the other. Also, some receivers may have a small 'jitter' on the output signal causing an undesirable servo 'buzz'. If servo buzz is found then this value should be increased to the minimum level at which the buzz is eliminated.
(DIGITAL servos often have a small, constant hum. Do not confuse this natural sound with bad "buzz" that we want to eliminate!)

Enjoy!

The Hyperion Team