AutoTalk Interface Board
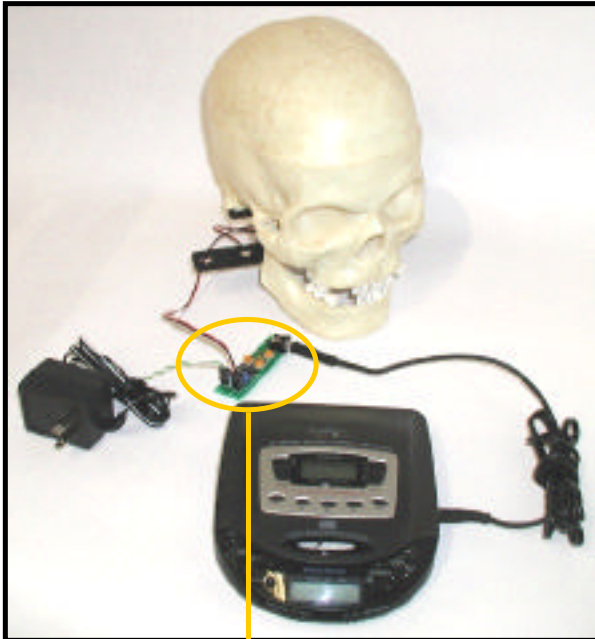
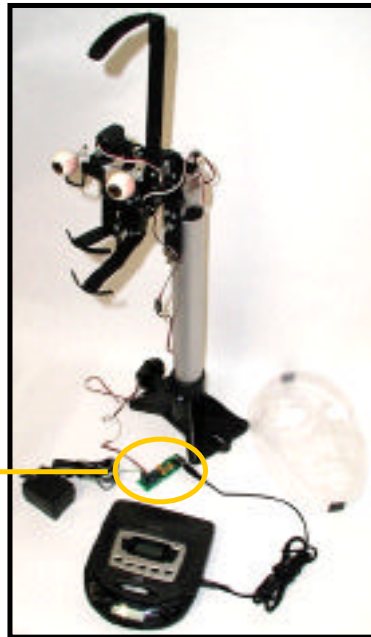*Controller*

(BPE No. APC-OOO1E)

The AutoTalk board will move a standard R/C hobby type servo in response to either an audio or speech 1 volt p-p line level input signal.

Talking Skull

Talking Animatronic Head

Talking Tree

AUTOTALK INTERFACE BOARD

Custom Equipment, Unique Electronic Products

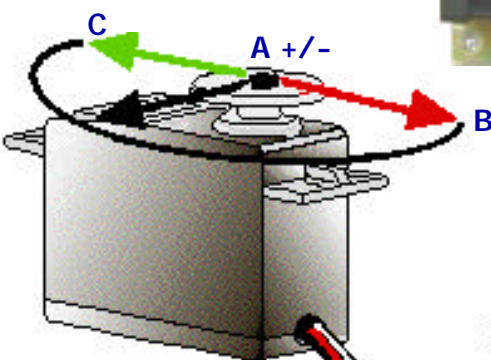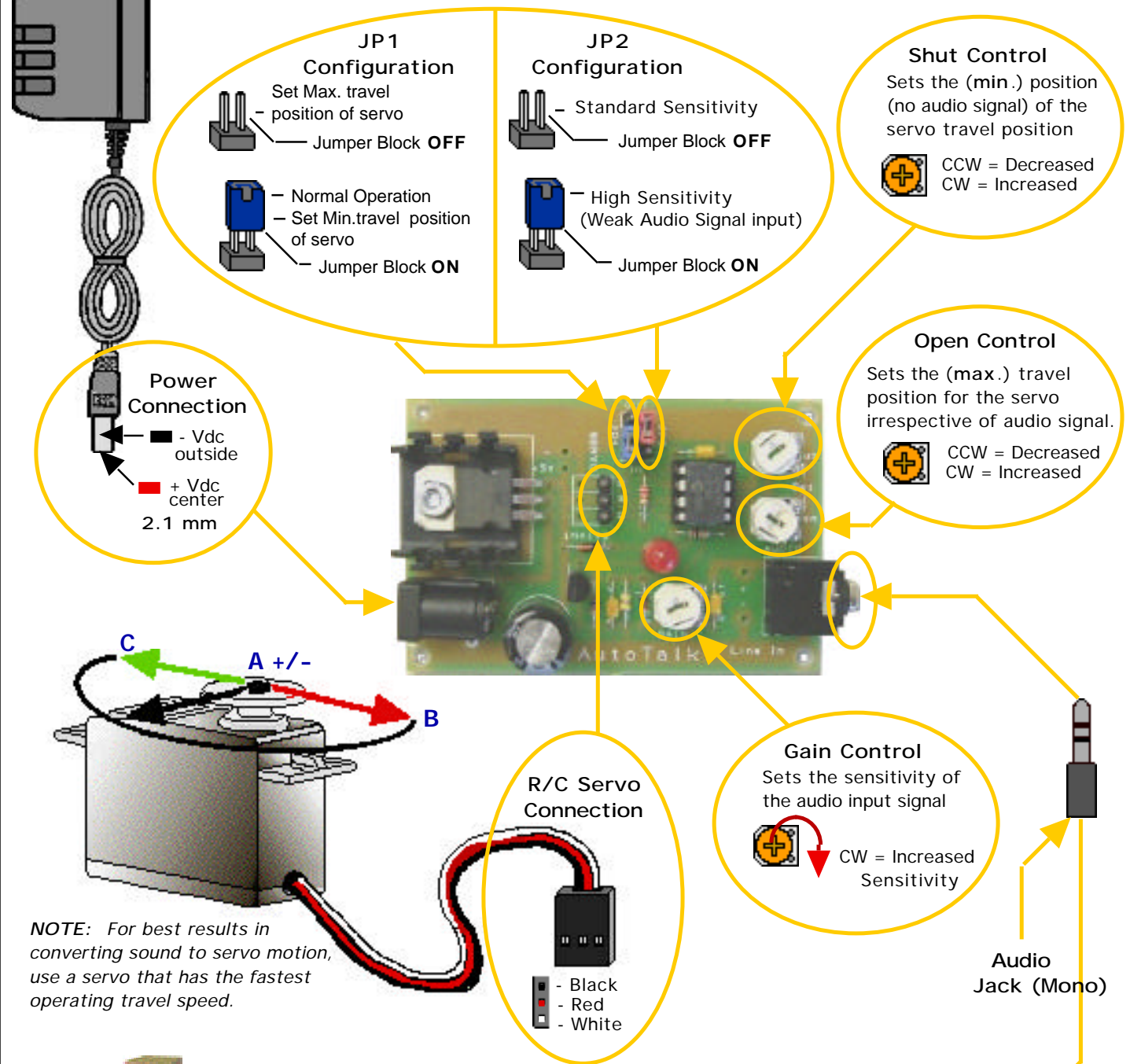**Blue Point Engineering**

www.BPEsolutions.com
Phone (303) 651-3794

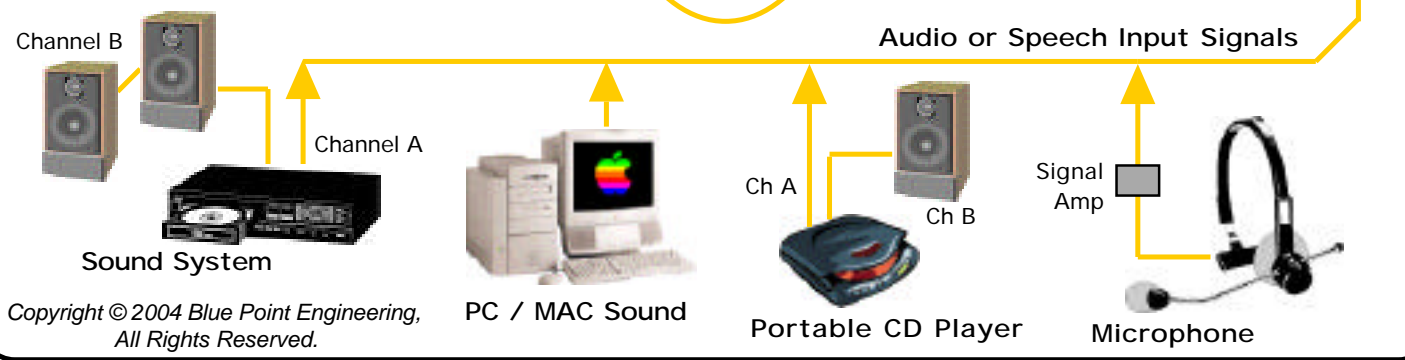# *AutoTalk Board*

The AutoTalk board will move a standard 5 Vdc R/C hobby type servo in response to either an audio or speech input signal. The AutoTalk includes the ability to set both the maximum, minimum travel position and direction of the attached servo motor.

Wall Power Supply
(9 Vdc @ 1 Amp)

JP1 Configuration

Set Max. travel position of servo
— Jumper Block **OFF**

— Normal Operation
— Set Min.travel position of servo
— Jumper Block **ON**

JP2 Configuration

— Standard Sensitivity
— Jumper Block **OFF**

— High Sensitivity (Weak Audio Signal input)
— Jumper Block **ON**

Shut Control

Sets the (**min**.) position (no audio signal) of the servo travel position

CCW = Decreased
CW = Increased

Open Control

Sets the (**max**.) travel position for the servo irrespective of audio signal.

CCW = Decreased
CW = Increased

Power Connection

■ - Vdc outside

■ + Vdc center 2.1 mm

C

A +/–

B

NOTE: For best results in converting sound to servo motion, use a servo that has the fastest operating travel speed.

R/C Servo Connection

■ - Black
● - Red
□ - White

Gain Control

Sets the sensitivity of the audio input signal

CW = Increased Sensitivity

Audio Jack (Mono)

Audio or Speech Input Signals

Channel B

Channel A

Ch A

Ch B

Signal Amp

Sound System

PC / MAC Sound

Portable CD Player

Microphone

Auto Talk Board

Connections:

Servo: Standard 5 Vdc R/C type servo connector. Ensure correct B.R.W. polarity (3-pin 0.1" spacing header).

Power: Power supply connector - 2.1mm quick connector. AutoTalk will accept 9.0-12.0 Vdc. Current rating for supply depends on the servo motor being driven. AutoTalk itself requires approx. 20mA. **Ensure correct polarity** (-/+) to prevent damage to the board. (Recommended power supply 9 Vdc @ 1 Amp)

Audio In: 2.1mm Mono jack socket. 1 Volt p-p audio signal level for maximum travel (90 degrees)

JP1: Jumper **Block ON** - normal operation. Min travel position of servo may be also set with the Shut Potentiometer when the jumper block is on.
Jumper **Block OFF** - Maximum open travel position of the servo may be set with the Open Potentiometer.

JP2: Sensitivity range control: Jumper **Block OFF** for standard sensitivity, Jumper **Block ON** for high audio sensitivity (low signal source input into AutoTalk)

Shut: Sets the (**min**.) position (no audio signal) of the servo travel position.

Open: Sets the (**max**.) allowable travel position for the servo irrespective of audio signal.

Gain: Sets the **sensitivity** from the **Audio Input signal** (clockwise for increased sensitivity).

AutoTalk Operation:

- Connect a standard 5 Vdc R/C hobby servo and 9 Vdc power supply (**Regulated Vdc**) to the AutoTalk board.
- Remove JP1 jumper block and adjust the maximum (**max**) travel position needed for the servo. (use the Open potentiometer), Replace the jumper after adjustment.
- Adjust the Shut (**min**) travel position needed for the servo. (use the Shut potentiometer)
- Connect an audio signal - adjust the gain until the desired amount of servo travel is obtained from the audio.

   To reverse the servo direction ; Remove the audio source (or turn the gain down to 0).
   Remove JP1 jumper block and set the Shut potentiometer fully counterclockwise. Set the required maximum servo travel position with the Open potentiometer. Replace the jumper JP1 and adjust the shut position as required. Re-connect the audio signal.

   The AutoTalk module selects either normal or reversed action depending on the relative positions for the shut and open potentiometers with the JP1 jumper off.
   To return the module to normal operation, repeat the reversal procedure but in this case set the Shut potentiometer fully clockwise.

AutoTalk Hints:

- For best results in converting sound to servo motion, use a servo that has the fastest operating travel speed. (Example 0.12 sec/60 degrees) Note: servo speeds over 0.14 sec/60 degrees may be slower to respond to sound and can sometimes appear to be out of sync with the sound.   (Mechanical slower than electronics)

- Use a sound source with at least a 1 - volt p-p line level output. (Mono Audio Cable)
   A 1 volt audio linel level is recommended from an audio source to get maximum servo travel (90 degrees), (microphone, tape, CD, sound system must = 1 volt p-p line level signal output).

- Set JP2
   Sensitivity range control: Jumper **Block OFF** for standard sensitivity, Jumper **Block ON** for high audio sensitivity.

- Think of the Shut control, as to mouth closed, and the Open control as to how big you want the mouth to open.
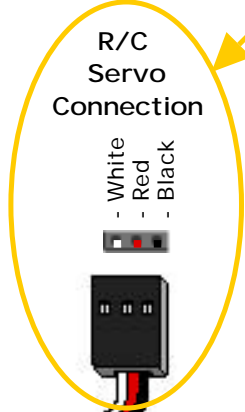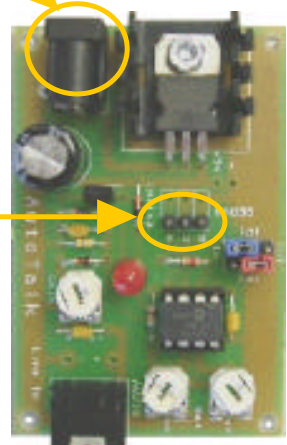
AutoTalk with CD Player
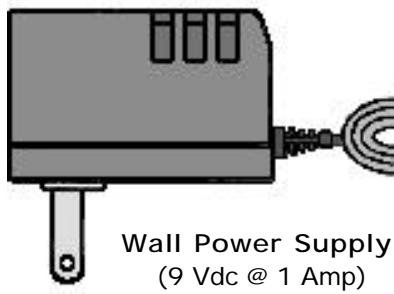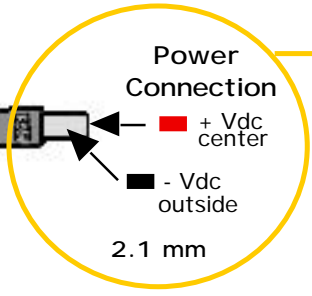
Power Connection

- + Vdc center
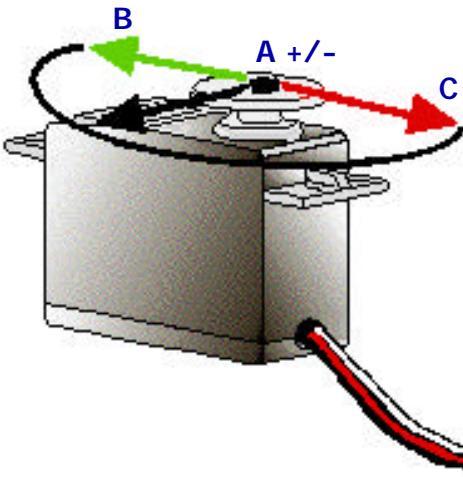- - Vdc outside

2.1 mm

Wall Power Supply
(9 Vdc @ 1 Amp)

NOTE: For best results in converting sound to servo motion, use a servo that has a fast operating travel speed.

B

A +/-

C

R/C Servo Connection

- White
- Red
- Black

Audio "Y" Cable

Audio "Y" Cable

TO AutoTalker

TO Speaker

Head Phone Jack

Speakers

CD Power Supply

Sound Board to AutoTalk

Pin Pair
Terminal

Ch-1

2.1 mm
Connector

Wall Power Supply
(9 Vdc @ 800 mAmp)
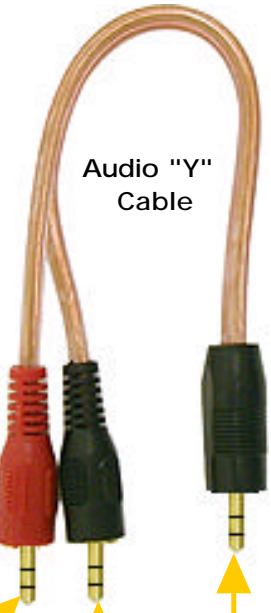
Sound Board Pro Module

Speaker
Playback

B

A +/-

C

White
Red
Black

R/C
Servo
Connection

NOTE: For best results in converting
sound to servo motion, use a servo that
has the fastest operating travel speed.

Audio
Input
Jack (Mono)

Power
Connection

+ Vdc
center

- Vdc
outside

Wall Power Supply
(9 Vdc @ 1 Amp)

2.1 mm