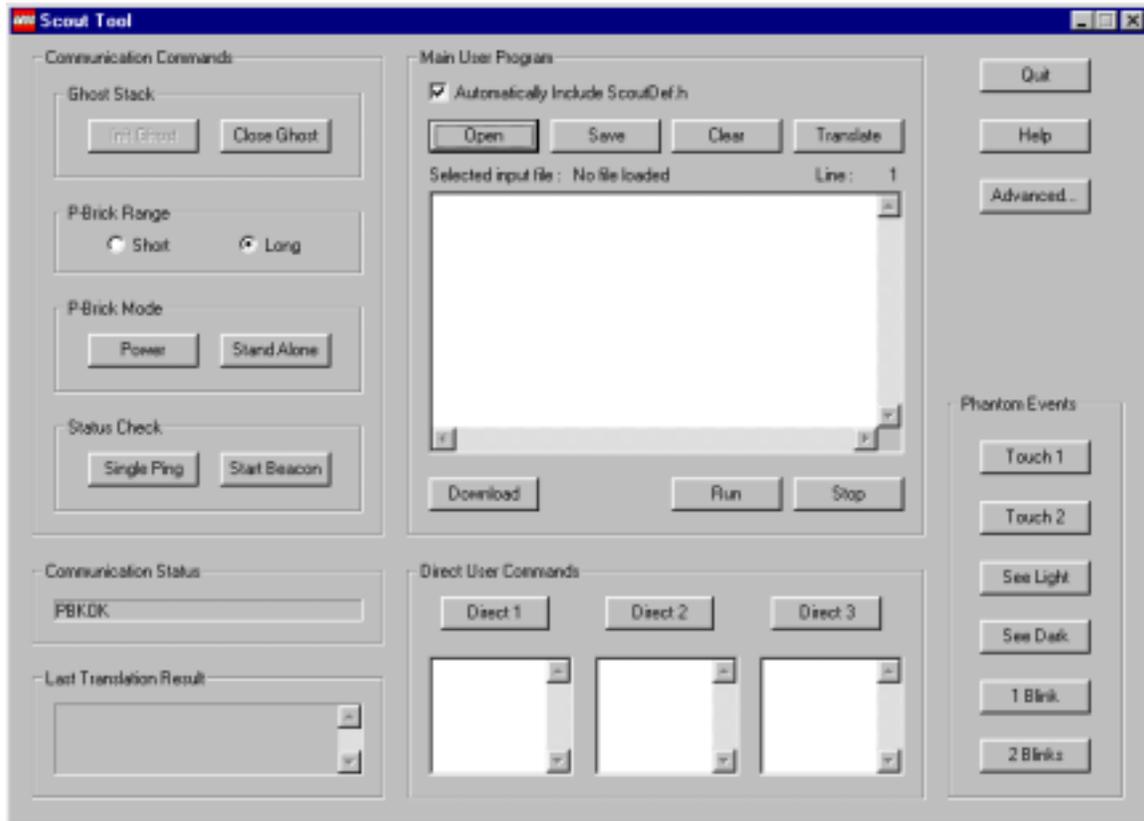


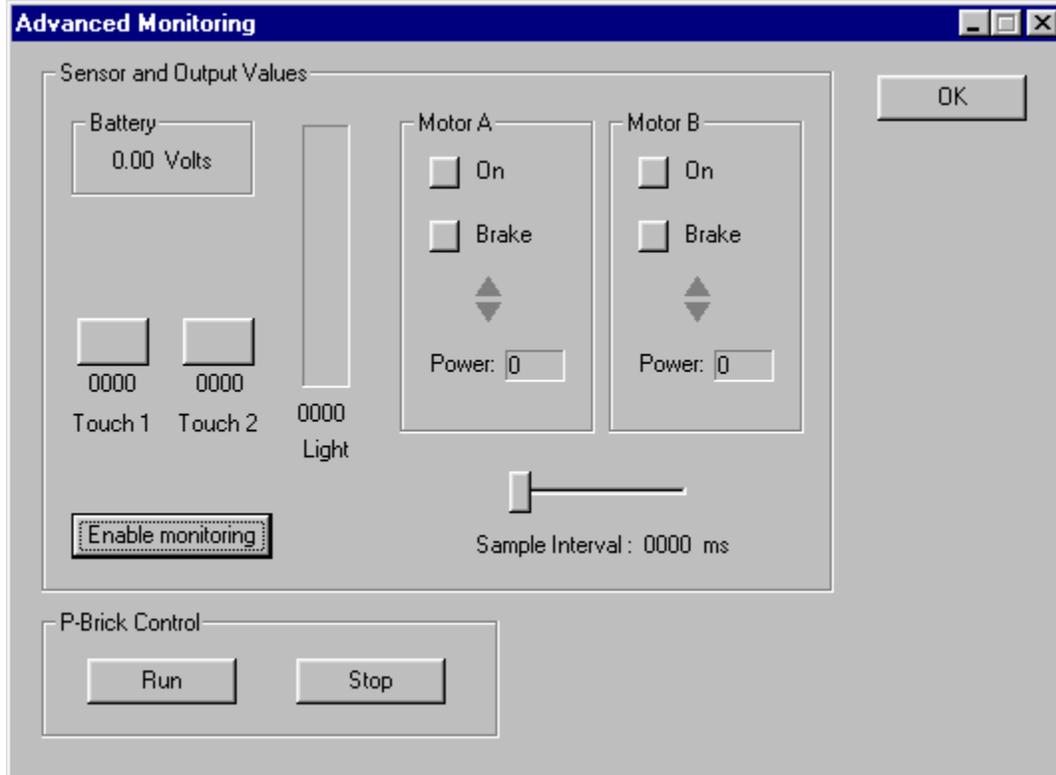


## Main Scout Tool Interface

Note: The Scout Tool includes an alpha version of LEGO's new communications driver called "Ghost" (which will replace "Spirit.OCX" for products released in the future)



- 1. Quit**
  - A. Click this button to Exit the Scout Tool application
- 2. Help**
  - A. Click this button to launch this Scout Tool Help file
- 3. Advanced...**
  - A. Click this button to launch the **Advanced Monitoring** section of the Scout Tool interface



## A. Sensor and Output Values

### 1. Sample Interval: xxxx ms

- a. This slider adjusts the sampling rate for monitoring the Scout in milliseconds

### 2. Enable Monitoring

- a. Click this button to enable real-time monitoring of the Scout (adjust the sample interval prior to clicking Enable Monitoring)

#### 1. Battery

- a. This displays the remaining voltage in the Scout batteries  
(New batteries, should display approximately 9.00 Volts)

#### 2. Touch 1

- a. This displays the resistance value of a Touch Sensor unit attached to Touch Sensor port 1

#### 3. Touch 2

- a. This displays the resistance value of a Touch Sensor unit attached to Touch Sensor port 2

#### 4. Light

- a. This displays a light value in a scale from 0000 to 1020  
Note:  
A display approaching a value of 0000 = a brightly lit area  
A display approaching a value of 1020 = a dimly lit area

**5. Motor A**

- a. On
  1. This displays whether the motor attached to Motor port A is on
- b. Brake
  1. This displays whether the motor attached to Motor port A is in Brake mode



- c. This displays whether a motor attached to Motor port A is turning in Forward or Reverse direction
- d. Power
  1. This displays the Power output value for Motor port A using a scale from 0 to 7

**6. Motor B**

- a. On
  1. This displays whether the motor attached to Motor port B is on
- b. Brake
  2. This displays whether the motor attached to Motor port B is in Brake mode



- c. This displays whether a motor attached to Motor port B is turning in Forward or Reverse direction
- d. Power
  1. This displays the Power output value for Motor port B using a scale from 0 to 7

**B. P-Brick Control**

- 1. Run**
  - a. Click this button to Run the Scout in either Stand Alone or Power mode
- 2. Stop**
  - a. Click this button to terminate a Scout program in either Stand Alone or Power mode



### C. OK



1. Click this button to return to the Main Scout Tool interface

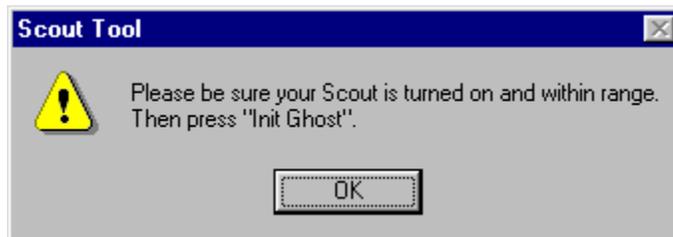
## Communication Commands

### 1. Ghost Stack

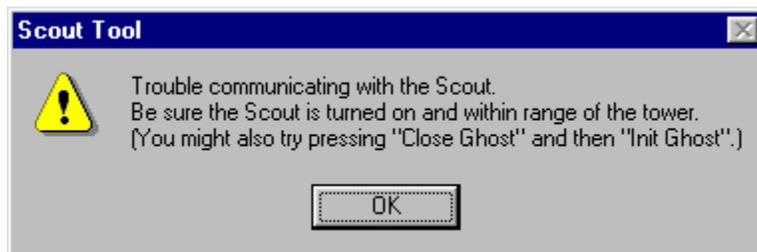


#### A. Init Ghost

1. If the Scout is turned On prior to launching the Scout Tool, Ghost is automatically initialized. There may be instances where Ghost is not initialized for the Scout, such as: the Scout is turned Off, the Scout automatically timed out, another application (i.e. RIS) is using Ghost, or the IR Tower is disconnected or not functioning properly. See the below examples.



a.



b.

In these instances, be sure that the Scout is turned On and the IR Tower is properly connected. Now click the Close Ghost button and then click the Init Ghost button to reinitialize Ghost

#### B. Close Ghost

1. Click this button to terminate Ghost. Please refer to **Init Ghost** for instances where this may be necessary



## 2. P-Brick Range



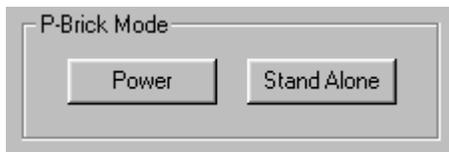
### A. Short

1. This radio button will set the range of the IR Tower to Short. This may be necessary in instances where there are other P-Bricks in the vicinity. This range setting will preserve battery power. This restricts the distance between the IR Tower and the Scout. Be sure to have the Scout close to and facing the IR Tower when in this setting

### B. Long

1. This radio button will set the range of the IR Tower to Long. This is the default setting for P-Brick Range. This allows for the greatest distance between the IR Tower and the Scout. This may be necessary in instances where there are high levels of IR emissions, e.g. Sunlight and Fluorescent light. Please refer to the **Status Check** section to help determine the maximum distance between the IR Tower and the Scout

## 3. P-Brick Mode



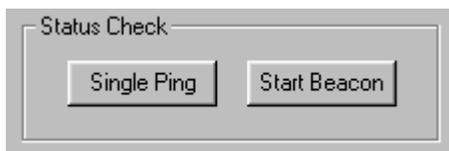
### A. Power

1. Click this button to set the Scout in Power mode. This mode allows for application level interaction with the Scout. Please refer to the **Power Mode** section in the **Scout SDK User Guide & Reference**

### B. Stand Alone

1. Click this button to set the Scout in Stand Alone mode. This mode only allows for interaction through the Scout interface (LCD and buttons). Please refer to the **Stand Alone** section in the **Scout SDK User Guide & Reference**

## 4. Status Check



### A. Single Ping

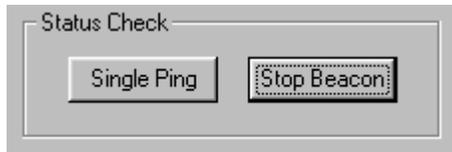
1. Click this button to send a single Ping to the Scout. The IR LED indicator should blink once on the Scout, and emit a single “beep”



### B. Start Beacon

1. Click this button to start sending a beacon signal to the Scout. The IR LED indicator should pulse on & off rapidly and emit an equal number of “beeps” to match the IR LED indicator pulses. Additionally this can be used to determine the maximum distance between the IR Tower and the Scout. Start sending the beacon signal while moving the Scout away from the IR Tower. At greater than maximum range the signal is no longer received by the Scout, thus the maximum distance has been determined

### C. Stop Beacon



1. Click this button to stop sending the beacon signal to the Scout.  
Note:  
This button only becomes available after clicking the Start Beacon button

## 5. Phantom Events

Note: Phantom Events are simulated sensor events. They are used to test an event action without physically creating the event. Also, the Touch LED indicators will not light up during the Touch sensor simulated events



### A. Touch 1

1. Click this button to simulate a Touch Sensor 1 event  
Note:  
Depressing the Touch 1 button is the same as depressing an attached Touch Sensor unit on the Scout  
Releasing the Touch 1 button is the same as releasing an attached Touch Sensor unit on the Scout

**B. Touch 2**

1. Click this button to simulate a Touch Sensor 2 event

Note:

Depressing the Touch 2 button is the same as depressing an attached Touch Sensor unit on the Scout

Releasing the Touch 2 button is the same as releasing an attached Touch Sensor unit on the Scout

**C. See Light**

1. Click this button to simulate a See Light event

**D. See Dark**

1. Click this button to simulate a See Dark event

**E. 1 Blink**

1. Click this button to simulate a Blink event. The IR LED indicator should blink once on the Scout

Note:

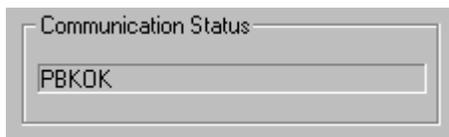
A Blink event is when the Scout detects a flash of light for a user-specified amount of time

**F. 2 Blinks**

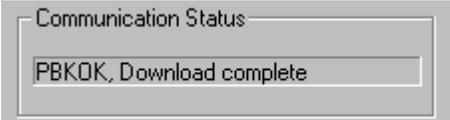
1. Click this button to simulate a Blink event. The IR LED indicator should blink once on the Scout

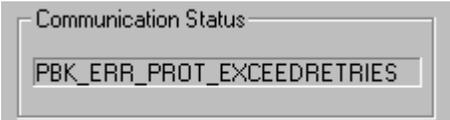
Note:

This event is when the Scout detects two flashes of light for a user-specified amount of time

**6. Communication Status**

- A. This field will display messaging relevant to the communication between the IR Tower and the Scout

1.  An example of a successful download to the Scout

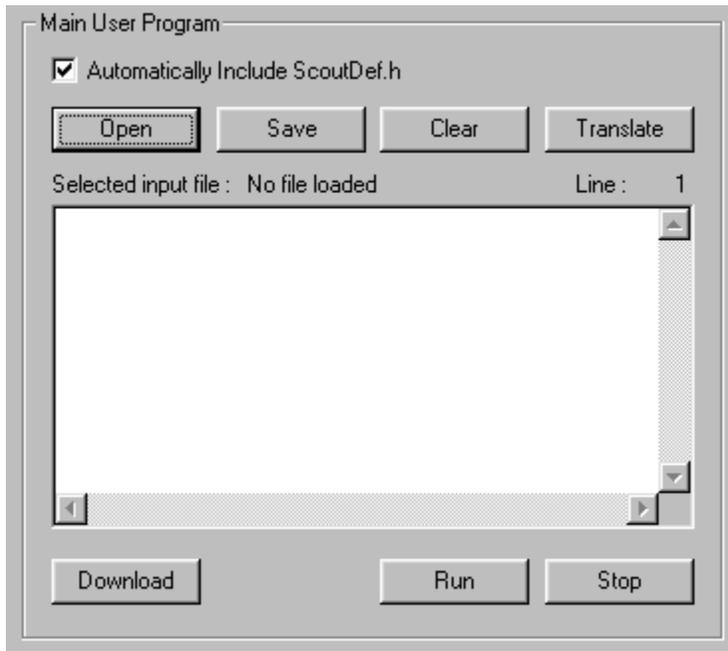
2.  An example of an out of range Scout

3.  An example of a user initiated closing of Ghost



## Main User Program

We have supplied a few sample programs to help show some of the various capabilities and structure of LASM. The programs can be found in the “Samples” folder within the “ScoutTools” folder. Please note, when commenting your code in the Main User Program field, the comment cannot exceed 100 characters. This includes any spaces and either the symbol(s) “;” or “//” to denote the start of your comment



Note: When checked, the checkbox shown above will automatically insert the line:

```
#include "ScoutDef.h"
```

at the top of your program. This “include” statement will allow the program to use a large selection of predefined macros and Scout specific settings by means of structured symbolic names. This checkbox also applies to the Direct User Commands

### 1. Open

- A. Click this button to navigate to previously saved files using the standard Windows Open dialog interface

### 2. Save

- A. Click this button to Save the current Scout Tool program using the standard Windows Save dialog interface

### 3. Clear

- A. Click this button to clear the Main User Program input text field

### 4. Translate

- A. Click this button to assemble the current program in the Main User Program field

### 5. Download

- A. Click this button to send the program from the Main User Program field to the Scout  
Note:



The program in the Main User Program field must first be translated successfully, before it may be downloaded to the Scout. Clicking the Download button always performs a translation operation prior to sending it to the Scout

## 6. Run

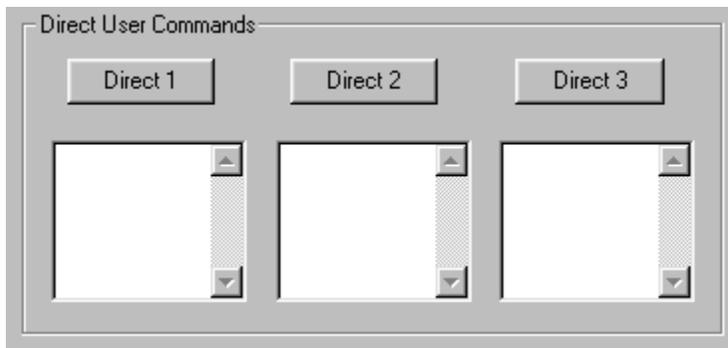
- A. Click this button to run the last program that was successfully downloaded to the Scout

## 7. Stop

- A. Click this button to terminate the Scout program currently running

## Direct User Commands

Note: not all commands are Direct Commands. For example opcodes such as, “plays”, “out” and “pwr” are Direct Commands, while “wait”, “calls” and “jmp” are not. Clicking any of the **Direct User Commands** buttons automatically performs a translation and a download operation to the Scout



### 1. Direct 1

- A. Enter a Direct Command (e.g. plays 2) into this field and then click the Direct 1 button. There should be an immediate response from the Scout

Note:

The above example will play sound in a descending frequency sweep

### 2. Direct 2

- A. Enter a Direct Command (e.g. plays 3) into this field and then click the Direct 2 button. There should be an immediate response from the Scout

Note:

The above example will play sound in an ascending frequency sweep

### 3. Direct 3

- A. Enter a Direct Command (e.g. playt 1000, 100) into this field and then click the Direct 3 button. There should be an immediate response from the Scout

Note:

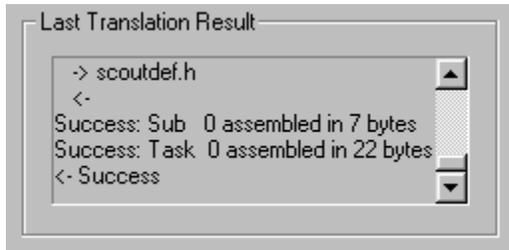
The above example will play sound at a frequency of 1000Hz for approximately 1 second

Note:

These three fields are independent of one another. Also, please refer to the **Main User Program** section regarding the “include” statement for ScoutDef.h



## Last Translation Result



### 1. Field

- A. This field will display results following a translation from the Main User Program field. Before a program may be downloaded to the Scout successfully, no error messaging should be displayed in this field