

**Caution :**

changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

**Compliance statement:**

This device is verified to comply with Part 15 of the FCC Rules. Operation subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



## Thank you for purchasing the ThinkOptics WavIt Controller!

And thanks for being part of our product launch. We greatly appreciate your support. Any feedback you have in the course of your use of the WavIt™ that you think would help improve our product would be most welcome as we move forward and endeavor to provide you with the newest greatest thing in remote control user experience. (Send to [support@thinkoptics.com](mailto:support@thinkoptics.com)).

### RECOMMENDED SYSTEM REQUIREMENTS

1. A Windows XP PC or preferably a Windows Media Center PC.
2. A free USB port
3. A large screen TV hooked up to your PC.
4. Optional: A comfortable couch or chair (sold separately) and storage space for your OLD remotes, mice and keyboards. Just joking...we do not sell sofas.

### IN THE BOX

You should find

1. A WavIt™ controller
2. A WavIt™ POD with retractable USB cable
3. Installation CD
4. 6ft USB extension cable

### OUT OF THE BOX

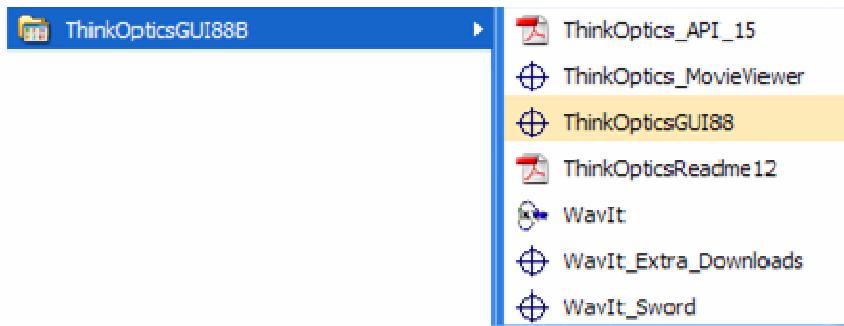
Install the CD BEFORE you attach the POD. Follow the instruction on the CD and reboot when asked. After rebooting, plug in the WavIt™ POD for the first time and allow Windows to auto-recognize it. You are now ready to play!

Now place the WavIt POD above or below you TV screen, with the clear bar facing the user.

The first time you turn on the POD you will see it blink 8 times as it searches for a clear RF spectrum to set up communication. When you now press a button on the WavIt™ Controller it will search for the nearest POD, blinking a few times. Once the link has been established the POD will blink at ~30 Hz whenever it communicates with a WavIt Controller.

## THE SOFTWARE

The main application that was installed on your PC is called **ThinkOpticsGUI88** and you can find it under the Start menu:



Click on this to start it. (Currently we do not automatically place anything in your Startup directory.)

[ThinkOpticsGUI88](#) provides and defines the programmable key mappings.

[WavIt\\_Extra\\_Downloads](#) provides some easy links to a subset of free programs on the Internet that we believe are fun to use with the WavIt™. Key mappings or MODES have been preprogrammed for these applications.

[WavIt](#) is the application that runs in the background and communicates with the WavIt controller. It also moves the mouse and provides the center OK button left-click. (This application can easily be placed in the Startup menu)

[WavIt Sword](#) is a floating 3D sword that shows you the 5 degrees of freedom.

[ThinkOptics MovieViewer](#) is a program for surfing .WMV files. It will by default allow you to view some simple movies of the WavIt™ in action.

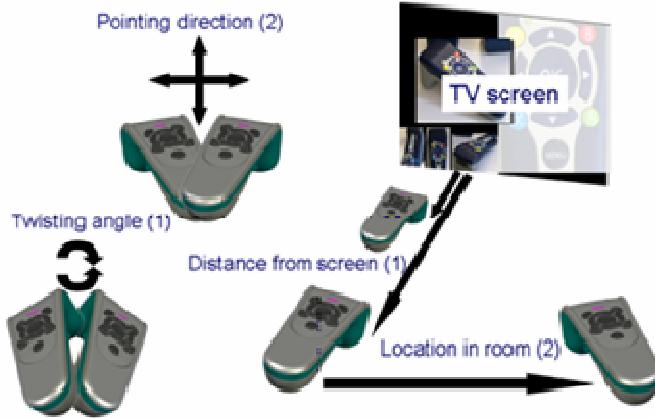
[ThinkOptics\\_API\\_15](#) is pdf documentation on how a programmer could easily interface to the WavIt and create new and unique user experiences, programs, or games.

## GETTING STARTED

When you start ThinkOpticsGUI88 you will see an introduction screen. We recommend reading through this introduction the first time. It will tell you about the ins and outs of the WavIt system and will only take a few minutes.

### ***Learning a bit about your system:***

The WavIt system is capable of tracking 5 degrees of Freedom. This means that it knows



- Exactly where you are pointing to on the TV screen (X, Y)
- The roll angle at which you hold the remote (think of it as a virtual dial)
- Your distance from the screen with millimeter resolution.
- And your lateral location in the room (the azimuthal)

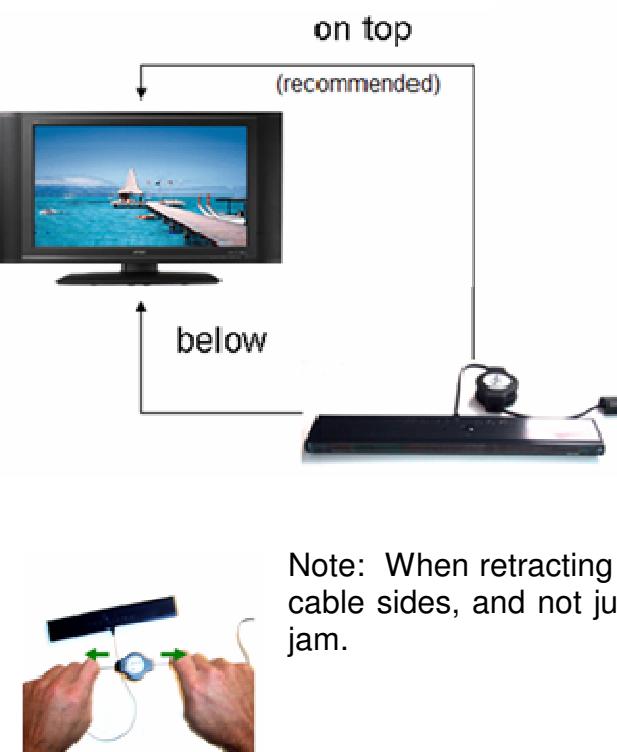
Your WavIt™ controller feels a lot like having an invisible laser pointer in your hand – The pointing is *DIRECT* and *ABSOLUTE*. This means there is not drifting over time and no relative motion like a mouse or a gyro pointer.

## How it all works:



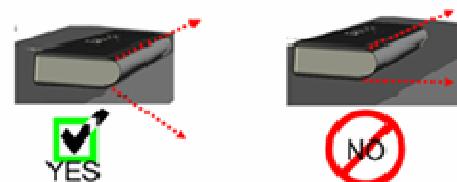
The operation of the Wavlt is conceptually very simple.

1. *The POD emits (invisible) IR beams:* These serve as beacons for the controller to lock onto.
2. *The Wavlt Controller tracks:* The "smarts" are in the Controller. An on-board camera and image system filters the image, analyses it in real time and sends its own coordinates via 2.4GHz radio to the POD.
3. *The POD communicates with the PC:* It passes information between the POD and the PC.



## Setting up the POD:

1. Place the POD on TOP of or BELOW the TV screen.
2. Face ROD-side out toward the user
3. Move POD to the edge of the TV ledge.



Note: When retracting the USB cable, be sure to pull on both cable sides, and not just one of them or the mechanism may jam.

## THE THINKOPTICS-GUI APPLICATION:

Now what can you do with your Wavlt™?

**1. You can point** to anything on your PC screen and the cursor will follow. *Simply point.*  
(User studies have shown that your aim is greatly improved if you sit down and rest your hand on your lap or chair armrest, but anything works).

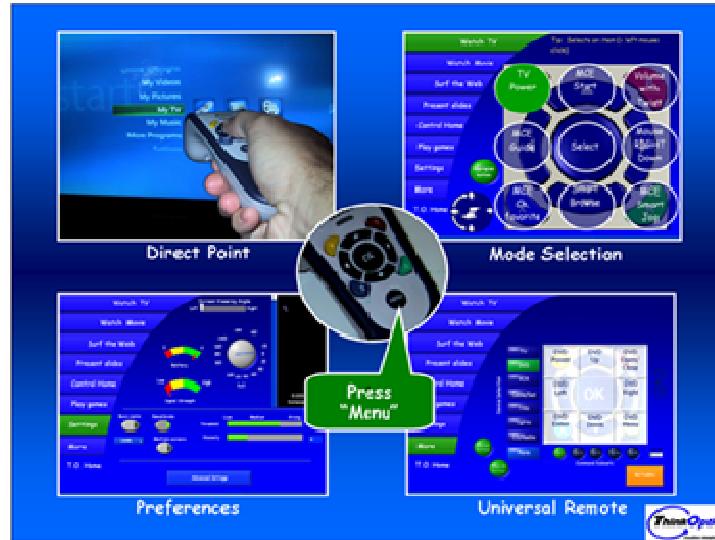
**2. You can press the center “OK” button.** This is the equivalent to the Left-click on a Mouse.

**3. You can always press the controller’s “Menu” button.**

This button will toggle a help screen on/off. This screen tells you what the other button presses do and will also allow you to adjust your preferences, such as pointing calibration.

*Example: Press the handset’s “Menu” button once to show the Menu screen, and press it again to make it disappear.*

**4. All other buttons are programmable:** We have assigned some default functions to them and arranged them into “Modes”. For example, pressing the “MCE Start” button is equivalent to the MCE “Green Button” and will start up Media Center on an MCE PC.



### Button Modes:

Buttons have been collected into 6 different "Modes".

1. Watch TV	4. Present Slides
2. IR Remote	5. Control Home
3. Surf the Web	6. Play Games

"Watch TV" mode will have a different button layout from "Surf the Web" or "Present Slides" modes.

When in a **Mode** simply press the equivalent button on the handset to activate its function. *Note: The "Menu" screen does not need to be visible for the buttons to work.*

**Short-cut Mode-switch:** You can also hold down the menu button for more than 0.5 seconds while twisting the remote to change the Mode.

**Auto Mode-switch:** If you turn this feature on (as it is by default), the GUI will automatically switch to the appropriate Mode if it recognizes the application that is currently being used.



*Example: When watching TV in Media Center, the "Watch TV" Mode is automatically selected. If you use a browser, the "Surf the Web" Mode automatically becomes active. If you run MS Powerpoint, the ThinkOptics GUI switches into "Present Slides" mode.*

**5. FOCUS, FOCUS!** When using the Wavlt™ to control applications on your PC, there is one thing you need to remember when pressing your buttons on the Controller – "Focus". The application you are controlling needs to be "in focus". You bring an application into focus simply by clicking anywhere on its Window. In this way you ensure that when you press a button on the Wavlt™, the appropriate commands, such as say "PC Window Minimize", is sent to that application.

## GETTING THE MOST OUT OF YOUR WAVIT:

There are a number of other topics that are important for getting the most value out of your WavIt™.

- 1. Reprogramming the buttons:** Once you become familiar with the WavIt™ you may find that there are certain functions that you would like to create a button short-cut for. For example, it may be that some application you use calls for you to press the "W" key on a keyboard. You can reprogram the WavIt™ buttons very easily. On the main Menu screen press the "Reprogram button" followed by a click on the on-screen button you wish to reprogram. This takes you to this screen.



Every Controller has its own unique profile, so reprogramming one will not affect the profile of another Controller.

When on the reprogramming screen you may choose a desired function for your button by first selecting which "Device" category the function would be in and then selecting the function. There are ~20 different device categories, each of which has from 5 to 150 different functions.

*For example: Choosing MCE (for Media Center Edition) for Device, will give you about 100 different functions that could be used to control your MCE, such as Channel Up/Down or View Pictures. The Repetition Rate selection should normally be set to "Single" if you only want the specified function to happen ONCE when the Controller button is pressed. You can change the repetition rate to faster if you want to repeatedly send out that command. This may be useful for the IR Volume up function, for example.*

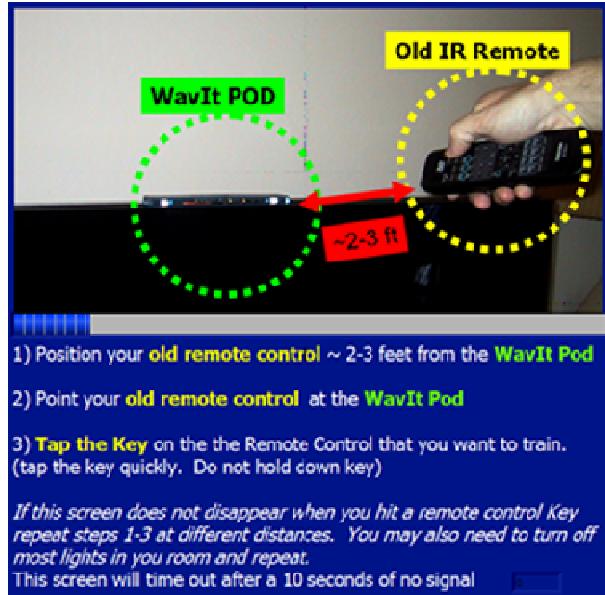
- 2. IR learning:** When you select a "Device" which is IR-capable, an IR-learn button will appear. This will allow you to re-learn the IR-code for that command.

In the WavIt™ system, it is the POD and the PC that learns and stores the IR code library, and not the WavIt Controller. The POD can learn IR codes from standard remote controls.

When you select the "Relearn IR code" button (step 2B) on the Reprogramming screen, you will be shown the IR learning screen. You now have 10 seconds to

point your old remote control at the POD and press the button on your old IR remote that you wish to learn and transfer to your WavIt system.

*Note: The IR learning process may take some practice. This is because the strength and IR remotes differ and you may need to adjust your distance from the remote between 2 to 4 ft before you get it right. Furthermore, external light sources may interfere with the learning so dim them as much as possible.*



**3. IR Blasting:** When you press a key that has an IR code associated with it, such as "DVD Power", the POD will send a very powerful IR blast into the room. Reflections from the walls in your room should be sufficient to control any IR device in your room. There is also a jack in the back of the POD that will support standard IR blaster cables.

**4. Unique profiles:** Every Controller has its own unique ID number and the ThinkOpticsGUI program takes advantage of this. ThinkOpticsGUI creates a unique profile for each Controller. This means that when you reprogram your button layout and IR codes that they remain specific to that handset alone. In this way, you can have different remotes for different people in the family or you can have remotes for left and right handed use, all of which can have their own unique profiles.

**5. Multiple users and PODs:** Up to 4 WavIt™ controllers can be connected to a single POD. Any more will not be allowed to associate with the POD. To CLEAR the POD's Association Table hold down the button on the POD for 3 seconds and the POD will blink once confirming the reset.

*When a Controller starts up for the first time, it searches for the nearest POD. It blinks 8 times during this initial search*

Up to 16 PODs can be within the RF range of each other (~100 ft).

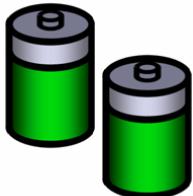


*When a POD is plugged into a USB port it automatically selects the lowest interference RF channel. It blinks 8 times and is then ready.*

When more than one controller is being used, only one cursor is shown on the screen. This is the Windows cursor. When the “OK” button is pressed on a Controller, that Controller immediately takes over control of the Windows cursor. In this way it is easy to **time-share the cursor**.



To show **more simultaneous cursors**, the ThinkOpticsGUI does offer the option to turn on multiple cursors. It is found on the Settings screen. This option gives each user a software generated colored dot (Red, Green, Blue, Yellow) that can be moved around on the screen by each unique Wavlt™ Controller.



**6. Battery Life:** In order to give you the best battery life for the Wavlt, it is currently designed to go to sleep after 5 seconds of inactivity. Press any key to instantly wake it up.

## 7. Operating range:

a. **Direct Pointing Range:** This is the optical range in which the direct pointing will work. This range is

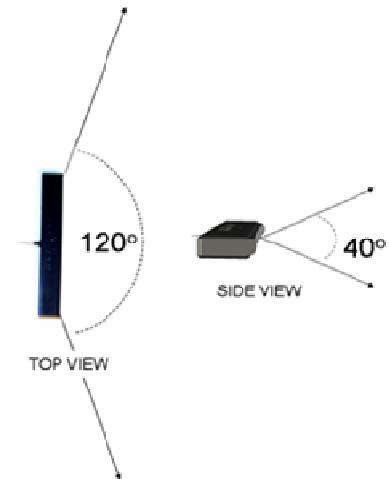
3 ft to 25 ft

b. **RF range:** The Controller communicates the button presses and more via a 2.4GHz RF link to the POD. This range is

0 ft to 400 ft\*

\*building and wall interference will affect this range.

c. **POD angle:** The POD emits a cone of light with an angle of 120 deg horizontally and 40 deg. vertically. Staying within this span gives best performance.



**8. Pointing Stability:** The Wavlt controller has a dynamic "anti-shake" function built in. So if you move try to select on-screen objects the stabilization kicks-in and helps stabilize your point. On the other, if you want to move fast from one side of the screen to another, the stabilization is dynamically turned off.

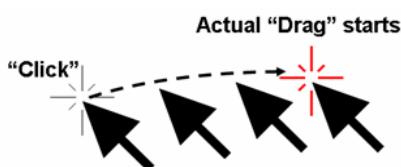
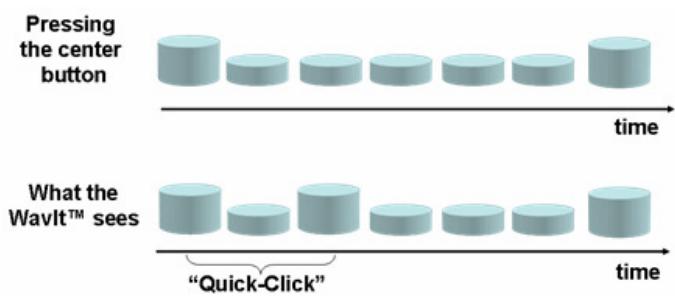
You can adjust the "Anti-shake" settings on the Menu/settings screen. There are 4 presets, where (1) is "Highly Responsive" and (4) is "Strongly stabilized." The default is 3. You can also select custom stabilization (5) from the advanced screen.

**8. Pointing Calibration:** For best pointing experience, remember to calibrate the pointing to the screen. This ensures that exactly where you point is where the cursor is. This is very similar to the one-time calibration needed for touch screen devices, such as the Nintendo DS or most PDAs.



*Note: Calibration should only be necessary once during initial setup in your Living room. Go to the "Settings" screen. You will be able to do a direct calibration or to choose from factory default calibrations.*

**9. Clicking:** The center "OK" button is always the left mouse button. By default, all "clicks" are actually preceded by a very short click to prevent Windows from interpreting a click as a "click & drag".



**11. Dragging:** For intentional dragging, wait a brief moment after clicking before moving. Otherwise the "drag" action will start at a later point in space.

**12. Minimize interference:** Here are some final tips to be aware of when setting up your system.



Note: This problem is reduced when the SmartTracking button is activated (as it is by default).

- Avoid placing bright exposed lights right next to TV.
- The WavIt tracking system relies on infrared (IR) light emitted from the POD to track the Controller's pointing direction, twist angle, and location in the room.

- Avoid other IR emitters near the POD. This includes very bright reflections from outside windows, or IrDA ports on Laptops keyboards.

*NOTE: Normal remote control receivers are NOT a problem, only strong emitters.*

## **FINAL COMMENTS:**

Movie watching is clearly still the major entertainment in front of the Living room TV and the Wavlt™ Controller and Media Center Computer are a great combination for quickly navigating your content and for easy recording and watching TV shows. However, it is important to realize that there are a lot of other interesting entertainment options available today that can be served up on the same large screen TV. We believe a device like the Wavlt™ is the enabler. Here are just a few examples to think about:

- Show you digital photos to family
- Select and Play MP3 songs from your collection
- Play PC games
  - Play casual games with the whole family (with up to 4 Wavlt units)
  - Play puzzle games
  - Play on-line card games
  - Play PC board games such as monopoly or scrabble
- Open up the Internet to your Living room
  - Download or view movies (example: YouTube, Google, Netflix, CinemaNow, MovieLink, iTunes etc.)
  - Search the web (with clicks and Wavlt on-screen keyboard)
  - Zoom in on pictures
  - Order pizza ....

The potential is almost limitless. And all this is available from the comfort of your couch, once you have your Wavlt™.

Experiment and expand your horizons. Tell us about it. And above all - have fun!

Sincerely,

The ThinkOptics Team