

# USER's MANUAL

The device has 3 powerful infrared LEDs which increases the IR transmit power and widens the transmit angle ( no need to point the device to the target equipment to be controlled). The Device is designed to get its power via the USB / no external power supply is needed . The module has a embedded infrared receiver module for capturing infrared signals @ 38khz frequency (most standard IR remotes work @ 38khz).

## Features:

- 3 High power IR leds for superb transmit range
- Infrared Remote Control Decoder
- Capture and replay Infrared signals
- USB connection to the host system
- Supported in LIRC and Winlirc
- Open source software and hardware
- compatibility with USB IR Toy drivers for linux & Windows
- slick transparent USB enclosure

This module works with Winlirc, Lirc and it is part of the Irdroid Wifi unit . The module is powered by the USB bus (5V). The module transmit circuit includes 3 powerful infrared LEDs connected in series. The current flowing through the diodes is constant 100mA. The optical amplification is based on the sum of the optical transmit power mW/Sr of all the three diodes. By using this technique we have increased the transmit range and the transmit angles (this means that the module does not have to be pointed towards the target equipment).

The pic 18F2550 microcontroller is a USB enabled device which is responsible for the transmitter / receiver part of the module, the PC / host communication is via CDC-ACM serial commands. The three infrared diodes are specially positioned one next to other in order to amplify the IR signal and to extend the transmission range. The Infrared receiver IC is located on the PCB bottom side. The Infrared receiver unit is very sensitive and allows adequate IR receiving from a distance of 15 meters.

## Drivers Download:

### Operating System – Windows:

The Irdroid USB IR Dongle uses a standard CDC ACM drivers, the drivers for the module can be downloaded from:

- <http://www.irdroid.com/2013/11/irdroid-usb-ir-tranceiver-introduction/>

Download the “inf driver” from the link above.

First insert your Irdroid USB dongle into a free USB port of your PC. The device will be identified as “unknown device” in the device manager.

You need to download the drivers archive from the above link, unzip and install the inf driver from windows device manager by right clicking on “unknown device” click update driver and

then select the path to the inf driver. After the driver installation is complete the newly installed device should appear in the Serial Ports section of the windows device manager. Right click on **the device in order to see the com** port number which will be needed for usage with Winlirc.

## Operating System – Linux:

The Irdroid USB Transceiver module uses a standard CDC ACM driver, which is automatically detected in most of the Linux distributions. After you insert the Irdroid USB Transceiver into your Linux box, the device will be automatically recognized and a new serial port will be added as a /dev/ttyACMX

The Irdroid USB IR Dongle is supported in the latest versions of LIRC and Winlirc, it works with the Dangerous Prototypes USB Drivers.

Using Irdroid USB IR Dongle with WinLirc:

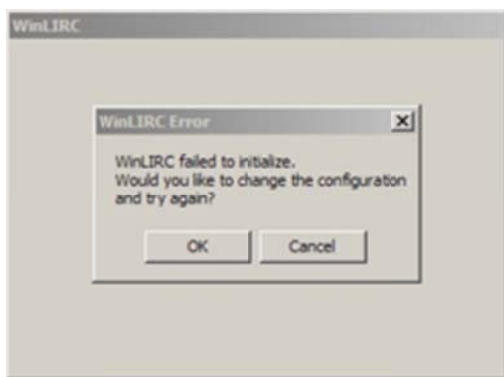
## Download Winlirc from:

- <https://sourceforge.net/projects/winlirc/files/winlirc/0.9.0g/winlirc-0.9.0g.zip/download>

## Configure WinLIRC

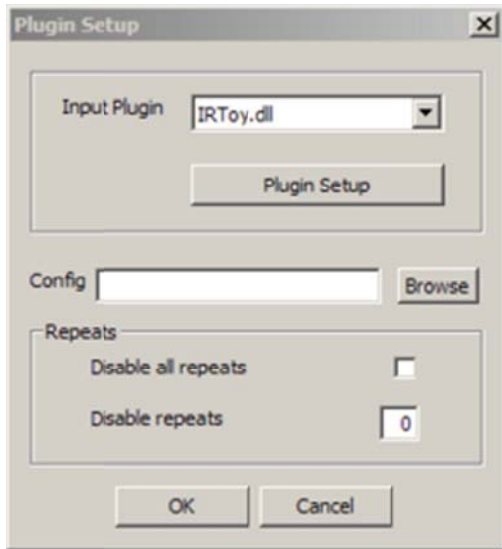
These steps describe how to setup and configure WinLIRC the first time you run it.

### Start for the first time



- Click *winlirc.exe* to start the program.
- WinLIRC will give an error and ask to create a new configuration file. **Click OK.**

### Select IR Toy plugin



- Change *Input Plugin* type to **IRToy.dll**
- Click *Plugin Setup*

### Setup IR Toy plugin

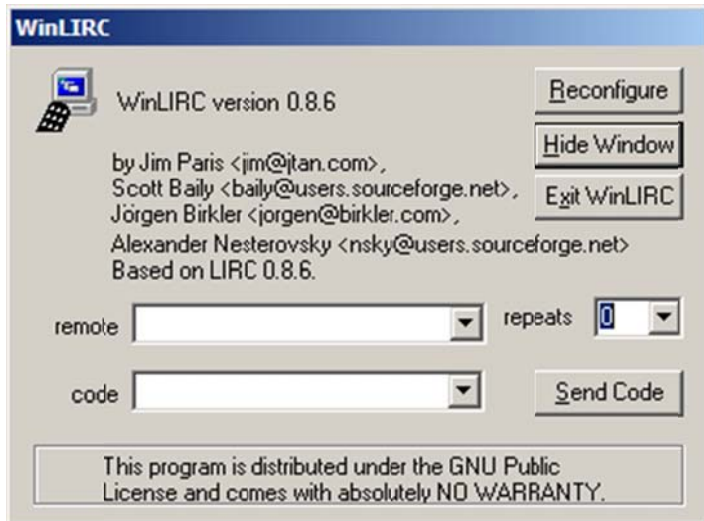


Be sure you opened the IR setup menu by clicking *Plugin Setup* in the previous step.

You will also need to know the COM port number assigned to the Irdroid IR Dongle. Check this in the Windows control panel under *Start-> settings-> control panel-> system-> device manager (hardware tab)-> ports*. If there are multiple ports you can unplug the Irdroid IR Dongle and note which port disappears.

- Change the *COM Port* to the number assigned to your Irdroid IR Dongle.
- Click OK on the *IR Toy Setup* window.
- Click OK on the *Plugin Setup* window.

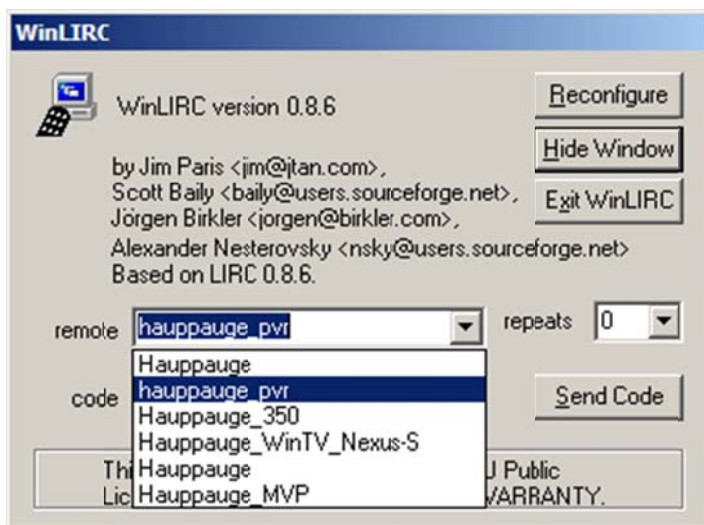
### Finish configuration



WinLIRC should be able to detect the Irdroid IR Dongle and receive signals.

- Now setup a remote control using one of the two methods below.

## Setup a remote control



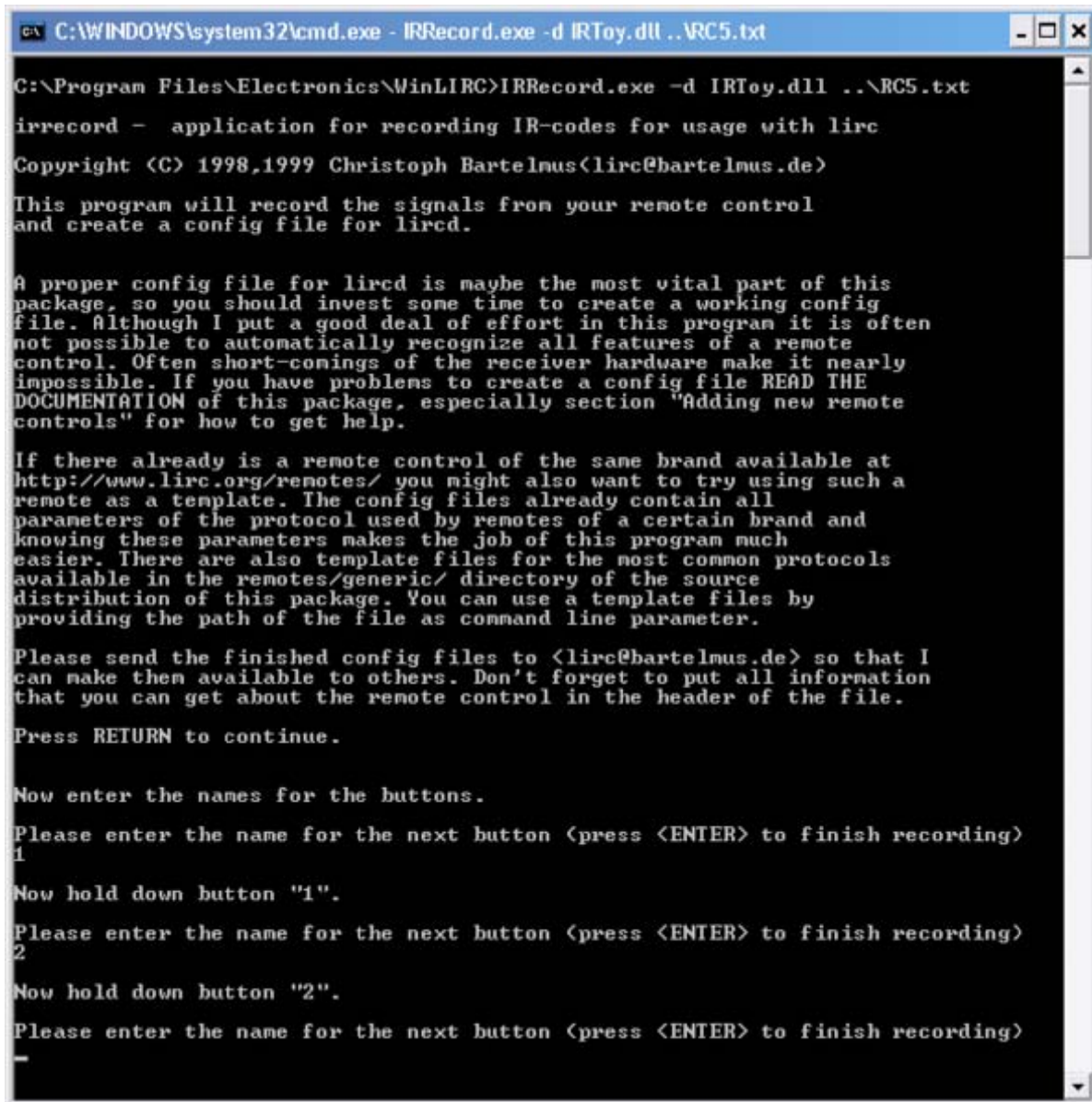
WinLIRC needs a configuration file to do anything useful with remote control input. You can download a config file, or generate your own.

Remote control configurations used by LIRC also work with WinLIRC. [Browse the existing configuration files](http://lirc.sf.net/remotes). <http://lirc.sf.net/remotes>

1. If an existing configuration matches your remote control, download it and put a copy in the WinLIRC folder.
2. Click *Reconfigure* on the main WinLIRC menu.
3. Click *Browse* next to *Config*, select the configuration file for your remote control.
4. Click OK, and OK again.

The remote box should list one or more remote controls found in the configuration file.

## Record a remote control configuration



```
C:\WINDOWS\system32\cmd.exe - IRRecord.exe -d IRToy.dll ..\RC5.txt

C:\Program Files\Electronics\WinLIRC>IRRecord.exe -d IRToy.dll ..\RC5.txt
irrecord - application for recording IR-codes for usage with lirc
Copyright (C) 1998,1999 Christoph Bartelmus<lirc@bartelmus.de>

This program will record the signals from your remote control
and create a config file for lircd.

A proper config file for lircd is maybe the most vital part of this
package, so you should invest some time to create a working config
file. Although I put a good deal of effort in this program it is often
not possible to automatically recognize all features of a remote
control. Often short-comings of the receiver hardware make it nearly
impossible. If you have problems to create a config file READ THE
DOCUMENTATION of this package, especially section "Adding new remote
controls" for how to get help.

If there already is a remote control of the same brand available at
http://www.lirc.org/remotes/ you might also want to try using such a
remote as a template. The config files already contain all
parameters of the protocol used by remotes of a certain brand and
knowing these parameters makes the job of this program much
easier. There are also template files for the most common protocols
available in the remotes/generic/ directory of the source
distribution of this package. You can use a template files by
providing the path of the file as command line parameter.

Please send the finished config files to <lirc@bartelmus.de> so that I
can make them available to others. Don't forget to put all information
that you can get about the remote control in the header of the file.

Press RETURN to continue.

Now enter the names for the buttons.

Please enter the name for the next button (press <ENTER> to finish recording)
1
Now hold down button "1".

Please enter the name for the next button (press <ENTER> to finish recording)
2
Now hold down button "2".

Please enter the name for the next button (press <ENTER> to finish recording)
-
```

You can record your own remote configuration files with the IRRecord utility included in the WinLIRC download.

### Setup WinLIRC

- First setup WinLIRC, IRRecord.exe uses the settings from WinLIRC.

```
IRRecord.exe -d IRToy.dll ..\remote.cfg
```

- Next, run *IRRecord.exe* from the command prompt or a batch file. Note the syntax above and the file path to remote.cfg.

## Protocol detection

Now start pressing buttons on your remote control.

It is very important that you press many different buttons and hold them down for approximately one second. Each button should generate at least one dot but in no case more than ten dots of output.

Don't stop pressing buttons until two lines of dots (2x80) have been generated.

Press RETURN now to start recording.

- IRRecord will ask you to press lots of buttons so it can determine the remote control protocol.

```
.....  
Found const length: 113489  
Please keep on pressing buttons like described above.
```

```
.....  
RC-5 remote control found.  
Found possible header: 916 833  
Header is not being repeated.  
No repeat code found.  
Signals are biphase encoded.  
Removed header.  
Signal length is 12
```

- After a lot of button presses IRRecord will determine the protocol and create a .cfg file.

## Record each button

Now enter the names for the buttons.

Please enter the name for the next button (press <ENTER> to finish recording)

1

Now hold down button "1".

- Next, IRRecord will learn each button on the remote.
- Type a name and then press a button. Repeat for each button.
- When all buttons are recorded, press enter to continue.

## Toggle bit detection

Checking for toggle bit mask.

Please press an arbitrary button repeatedly as fast as possible.

Make sure you keep pressing the SAME button and that you DON'T HOLD the button down!.

If you can't see any dots appear, then wait a bit between button presses.

Press RETURN to continue.

No toggle bit mask found.  
Successfully written config file.

Press any key to continue . . .

- Finally, IRRecord determines if there is a toggle bit by reading the same key repeated.
- Load the generated remote control configuration according to the instructions above.

The newly generated configuration file contains your remote data.

## Automating actions

WinLIRC just decodes remote control signals. A separate program interfaces with WinLIRC and automates actions on your computer. We like [EventGhost](http://www.eventghost.org). <http://www.eventghost.org>

Other programs that can interface with WinLIRC are listed at the bottom of the [WinLIRC homepage \(software which supports WinLIRC\)](http://winlirc.sf.net). Refer to : (<http://winlirc.sf.net>)

**For using LIRC on Linux , please refer to :**

<http://www.lirc.org>

**For Using WINLIRC on windows, please refer to :**

<http://winlirc.sourceforge.net/>