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## ***ACT-IR224UN-CIR***

### ***USB to Dual IR (Direct IR and RAW-IR) Adapter***

#### ***User's Manual***



**February 6, 2013**

**Version 1.0.0**

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**Warning! Please Install Driver BEFORE**  
**you plug in the Dongle to USB port.**

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## REVISION HISTORY

Revision History		
Revision	Date	Comment
1.0.0	2/6/2013	Initial release – all-in-1 Windows driver installer v1.7.0 (2012-8-1)

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## 1. OVERVIEW

**ACT-IR224UN-CIR** is a consumer IR adapter used for both Raw IR and Remote Control IR.

## 2. FEATURES

- a. ACT-IR224UN-CIR supports baud rate from 1.2 to 115.2 Kbps.
- b. Supports Raw IR.
- c. Also supports Direct Access mode, the IR transmission tracks directly what is present on the TXD pin. A logic '1' means that the LED is off, a logic '0' means that the LED is on.
- d. Also it supports Consumer IR (CIR) which is the use of Infrared to remote control home appliance, such as TV and DVD player.
- e. Supports Virtual COM port. Less Latency time, average is 1.5 ms. The latency of a real COM port is about 0.5ms.
- f. Fully compliant with USB 2.0 (Full speed, 12 Mbps).
- g. 256 bytes outbound buffer and 256 bytes inbound buffer.
- h. Supports Windows 98/ME/2000, Win XP SP2/Vista/Win 7/8 (32& 64 bits), Check our Tech Support on Mac OS, Linux, [Android](#) & Windows-CE (ARM & x86).

## 3. PACKAGE CONTENT

- IR Adapter x1
- Installation CD x1, which includes:
  - a. Device driver installer
  - b. User's Manual
  - c. CS8130 datasheet

## 4. SPECIAL NOTICE & SYSTEM REQUIREMENT

### 4.1 Special Notice

#### 4.1.1. Timing of COM Port Closing

ACT-IRx24UN-Lx / [ACT-IRx24UN-Lx-LE](#) uses DTR and RTS signals to configure IR communication speed and has 256 bytes inbound buffer & 256 bytes outbound buffer. Normally this *Raw IR* transmitting dongle has *no flow control protocol*. So, if the sending side has completed its sending but some data in dongle buffer still pending transmission before you close the COM port, DTR and RTS signal will get change consequently. This will also cause the *baud rate change*. In such a case the receiver will get junk data. To prevent this, we recommend giving some *delay time before closing the port*, which ensures all pending data being sent out completely.

#### 4.1.2. Improve the Throughput

We recommend sending bulk of data rather than byte-by-byte data to achieve good throughput. E.g., send the entire data as a whole, instead of calling the write API one byte at a time. If your data size is too big, then you can send them in multiple blocks.

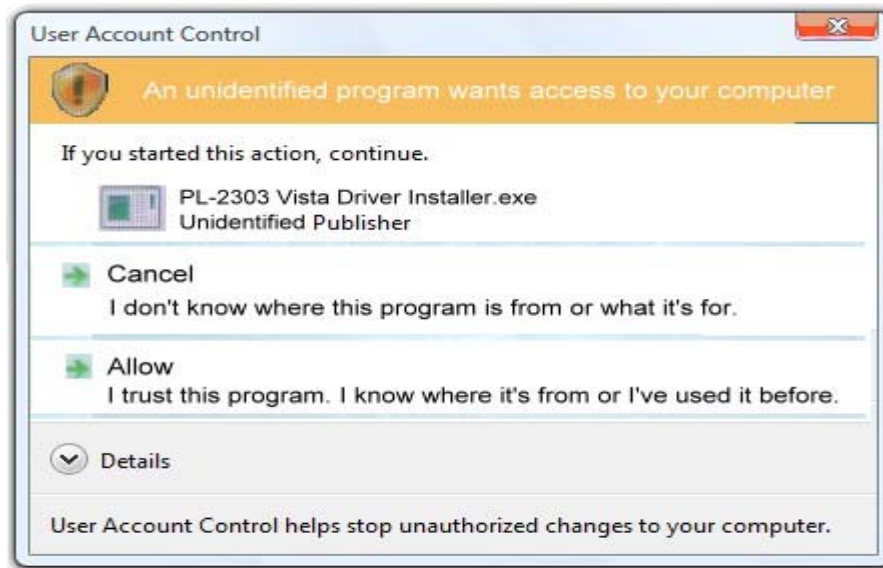
### 4.2 System Requirement

1. Windows 98/ME/2000 SP4, Win XP SP2/Vista/7/8 (32 & 64 bit).
2. At least 256MB RAM (512MB is recommended).
3. Processor Speed 1.8 GHz.
4. USB 1.1 port (or above).

## 5. FAQ (Frequently Asked Questions)

- **Q1:** When we use this dongle, occasionally at the end of communication, a few bytes show as junk in receiver side. Why? And how to solve?
- **A1:** Please refer to [4.1.1 "Timing of COM Port Closing"](#) in section 4.1 Special Notice.
- **Q2:** How to improve the channel utilization or throughput?
- **A2:** Please refer to [4.1.2 "Improve the Throughput"](#) in section 4.1 Special Notice.
- **Q3:** While un-installing the Driver, Windows prompts to Restart. Do I need to restart the PC?
- **A3:** Yes! We highly recommend restarting the PC so that you can complete the un-installation successfully.
- **Q4:** In some Windows XP, while Un-installing the driver (from "**Add or Remove Programs**"), it is not restarting automatically when I select "Yes" to restart. Why?
- **A4:** We recommend Method 1 in Chapter 10 to un-install the driver. If system still doesn't restart automatically, it is highly recommended to restart manually.

- **Q5:** In Windows Vista, I am getting an “**elevation prompt**” of the **administrator permission** each time I perform any new driver installation/un-installation or running any new application. Why?
- **A5:** Windows Vista/Win 7/8 have added a new Security Feature called as “**UAC (User Account Control)**”. So, in such OS, if **UAC has been turned on** (refer to **Appendix**) then you will get an “**elevation prompt**” of the administrator permission each time you perform any new driver installation/un-installation like follows. In that case, Press Allow button and continue your driver installation/un-installation.



In general, with “**Administrator Approval Mode**”, Win Vista/Win 7/8 will run most applications with **standard user permissions** even if the user is an **administrator**. If you wish to run a program that requires **administrator permissions**, please **give consent** through **User Account Control**, which means, right click the application SW and select “**Run as administrator**”.

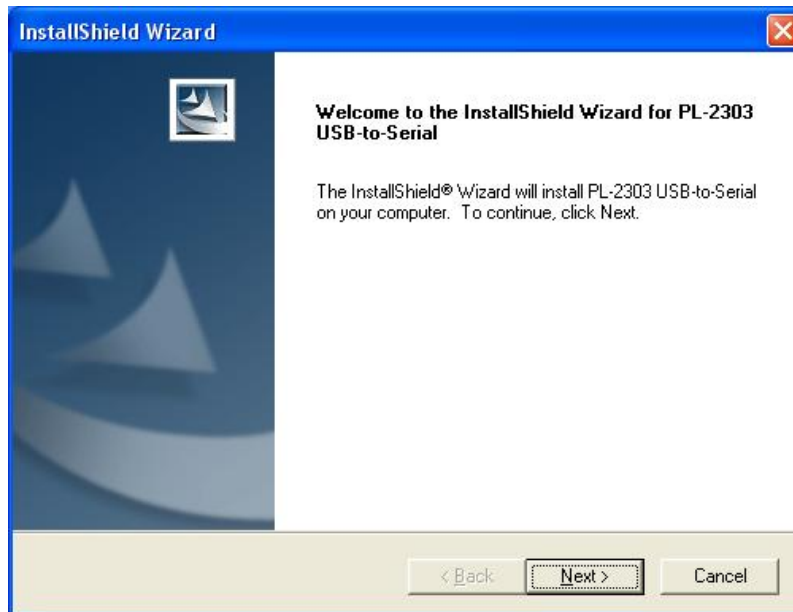
## 6. GENERAL SETUP PROCEDURE

- a) Make sure USB dongle is **NOT plugged** into PC until you have installed the driver.
  - b) From “Add or Remove Program” in **Control Panel** of Win 98/ME/2K/XP, or from “**Programs and Features**” in **Control Panel** of Windows **Vista /Win 7**, check if “**PL-2303 USB-to-Serial**” or “**PL-2303 Vista Driver Installer**” exists. If exists, please **remove it first**.
1. Insert the installation CD. In most cases this should start the installation automatically.  
And the first step it will copy the following files to the path:  
“C:\Program Files\ACTiSYS\ACT-IRx24UN”
    - ACT-IR224UN-CIR User's Manual.
    - DriverInstaller is copied to the subdirectory named “Driver”.
  2. If the installation Does start automatically, go to the next section.
  3. Otherwise explore the CD contents
  4. Double click “**Auto.bat**”.

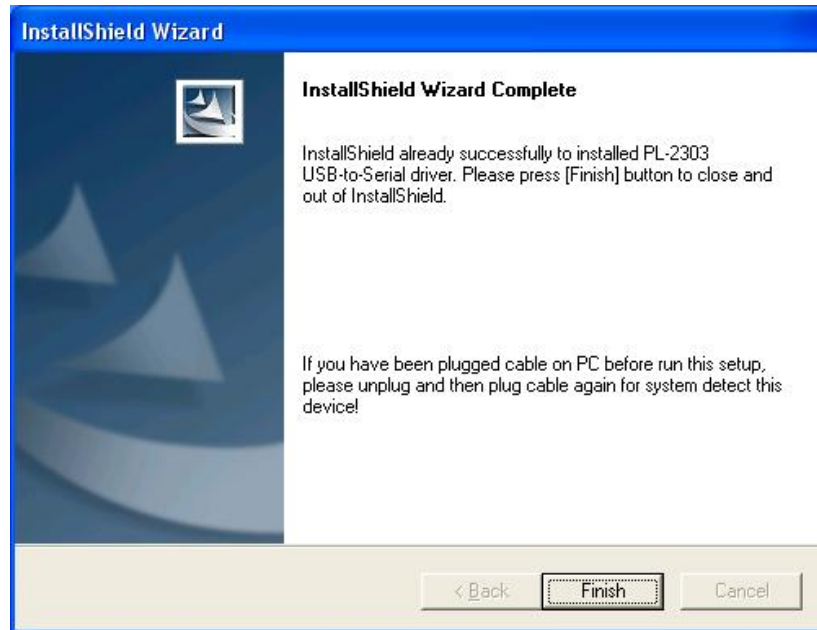
### 6.1 Driver Installation

#### 6.1.1 Driver installation for Windows 98/ME/2000/XP

1. After completes the files copy, it will start the driver installation. Then a welcome screen for PL-2303 Driver installer will show up. Click “**Next**” to continue.



2. When this Installation completes, click **"Finish"** to close the Wizard window.



3. Now plug IR adapter to USB port. System will pop up a **"Found New Hardware"** bubble window at the right corner of Tool Bar and display the message: **"Prolific USB-to-Serial Comm Port"** at the first time you plug in.

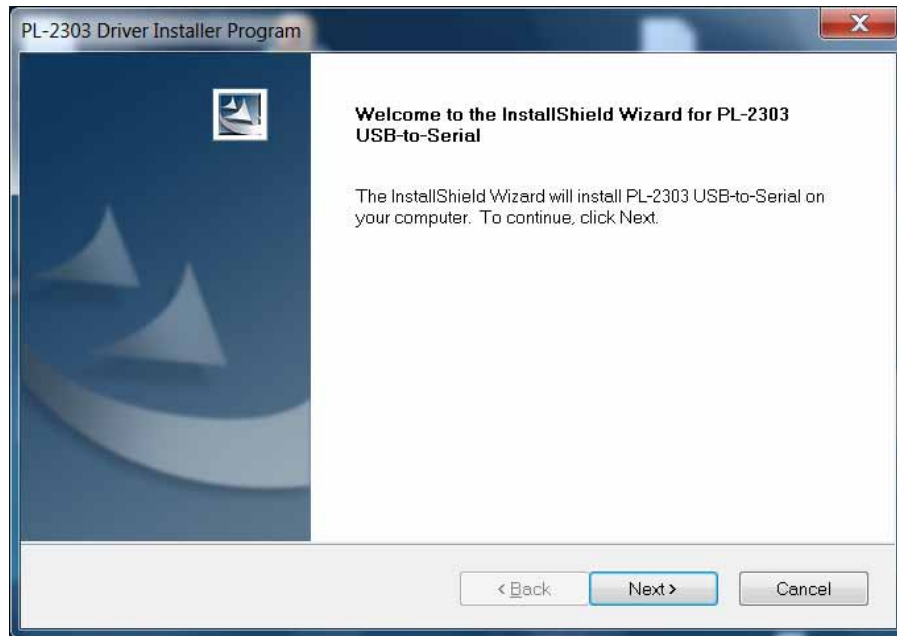


4. This completes the driver installation. Now you can confirm the installation per chapter of "Installation Check".

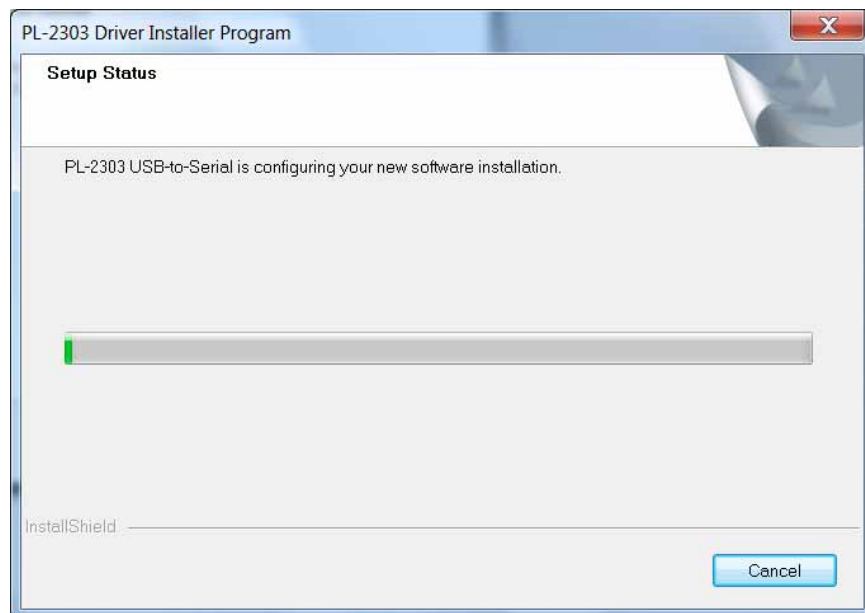


### 6.1.2 Driver Installation for Windows Vista /Win 7/8 (32 & 64 bit)

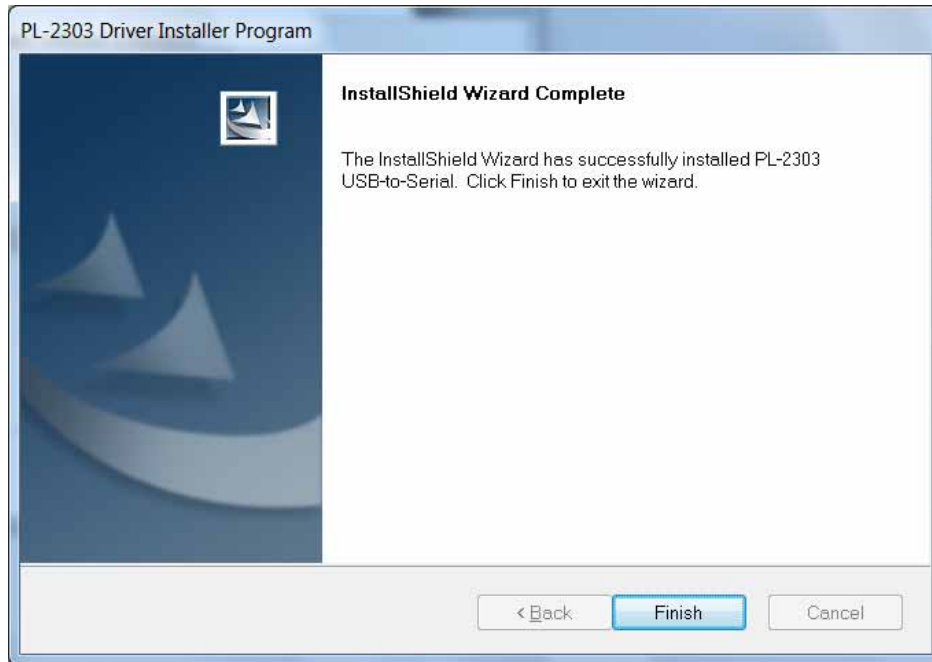
1. After completes the files copy, it will start the driver installation. You may get “elevation prompt” of “(UAC)” if UAC has been turned ON in your Windows Vista OS (see [FAQ](#) for details). Else a welcome screen for PL-2303 Driver installer will show up. Click “Next” to continue.



2. You will see the Vista Driver Installer under processing:



3. When this Installation completes, click "Finish" to close the Wizard window.



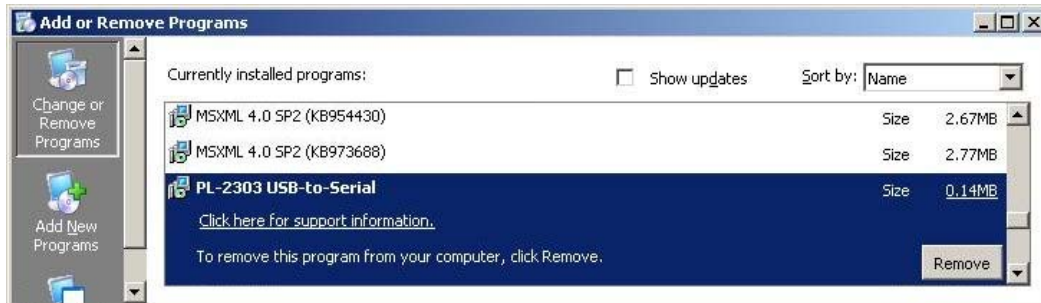
5. Now plug IR adapter to USB port. System will pop up a "**Found New Hardware**" bubble window at the right corner of Tool Bar and display the message: "**Prolific USB-to-Serial Comm Port**" the first time you plug in.
6. This completes the driver installation. Now you can confirm this per [Chapter](#) of "Installation Check".

## 7. INSTALLATION CHECK

### 7.1 Check “Add or Remove Programs” or “Programs and Features” in Windows

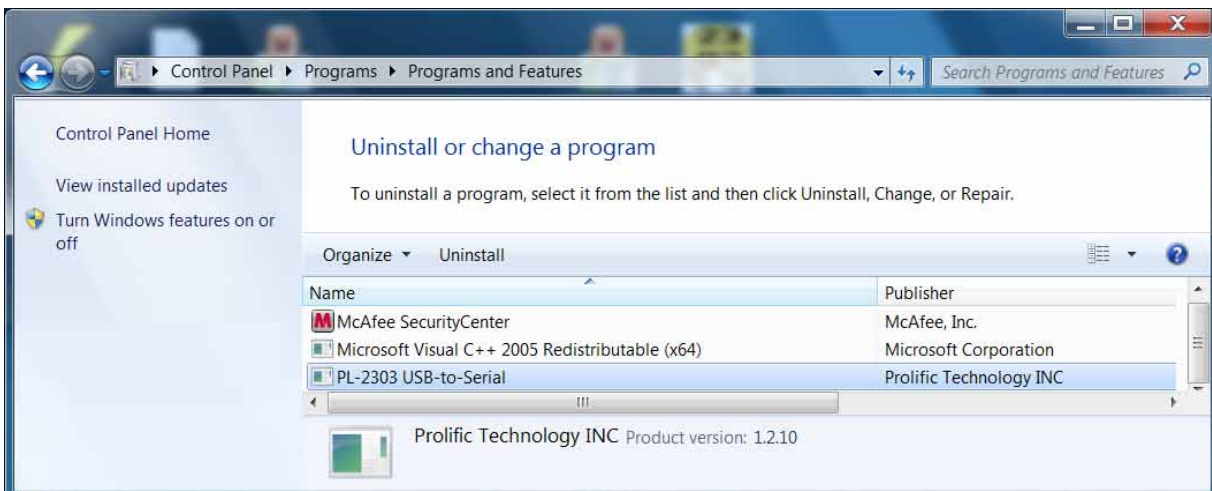
#### 7.1.1 Check Programs in Windows 98/ME/2000/XP

You can open “Add or Remove Programs” window from “Control Panel” in Windows. Check if “PL-2303 USB-to-Serial” is listed as shown below:



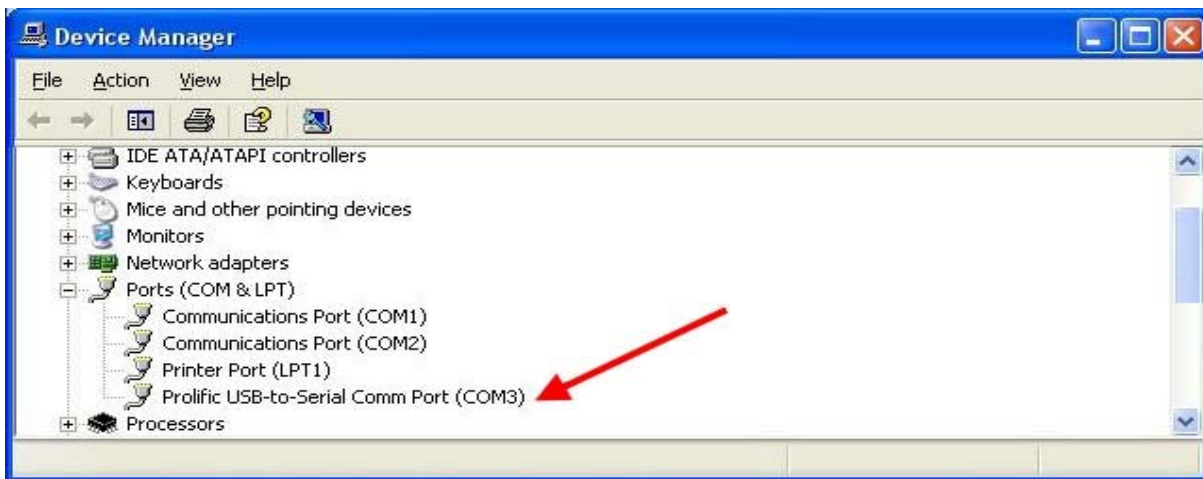
#### 7.1.2 Check Programs in Windows Vista / Win 7

In Windows Vista /Win 7, you can open “Programs and Features” window from “Control Panel” and see “PL-2303 USB-to-Serial” as below.



### 7.2 Device Manager Check in Windows

1. You should have plugged IR Dongle to USB Port.
2. To confirm if the installation is successful, you can also open “Device Manager”.
3. You will see the device described as “**Prolific USB-to-Serial Comm Port (COMx)**” installed under **Ports (COM & LPT)**, where COMx is the COM port number, **COM3** for this example. This is the place you can check which virtual COM port this device has been connected. See below.



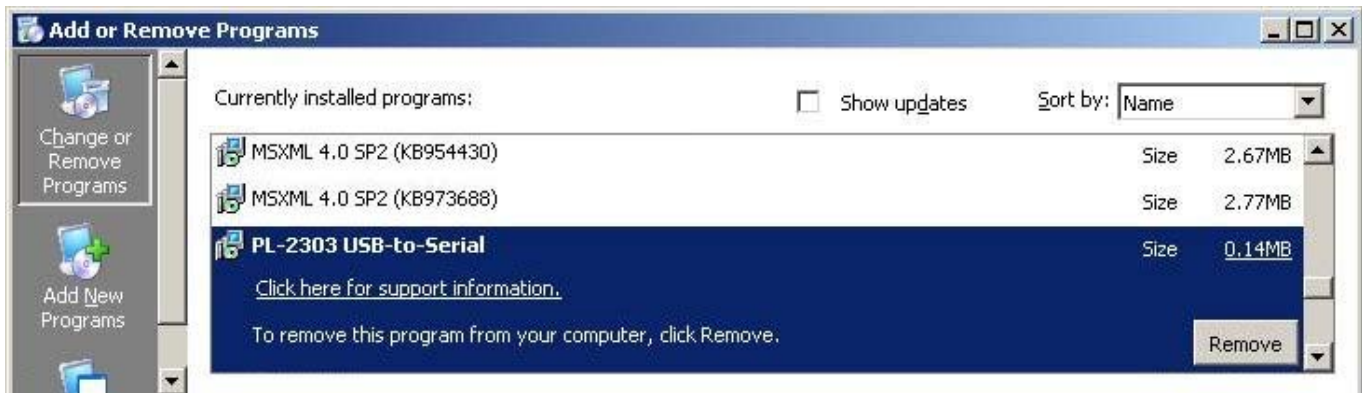
## 8. UN-INSTALL THE DRIVER

**Note:** This un-installation will only remove the Dongle Driver alone. As to all the other files copied to the folder under C:\Program Files\ACTiSYS\ACT-IR224UN\, you have to delete them manually when needed.

### 8.1 Driver Un-installation For Windows 98/ME/2000/XP

#### 8.1.1 Method 1 - Add or Remove Programs

1. Double click “**Add or Remove Program**” under “**Control Panel**”.



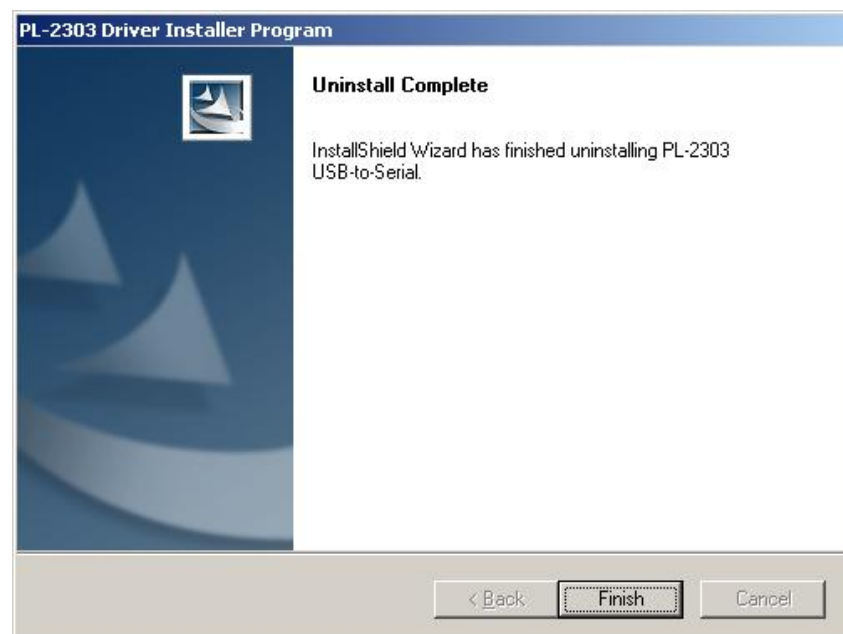
2. Select “**PL-2303 USB-to-Serial**” and click “**Remove**” to remove the drivers. It will pop up a **Welcome** window as below. Select “**Remove**”, then click “**Next>**”.



3. It will ask you to confirm as below window. Click **Yes** to continue.



4. After seeing **Uninstall Complete** window, click **Finish** to close the wizard.



## 8.1.2 Method 2 - Driver Installer

1. From C:\Program Files\actisys\ACT-IR224UN\Driver, run  
“ACT-IR224UN-DriverInstaller\_v1.7.0-20120801.exe”.



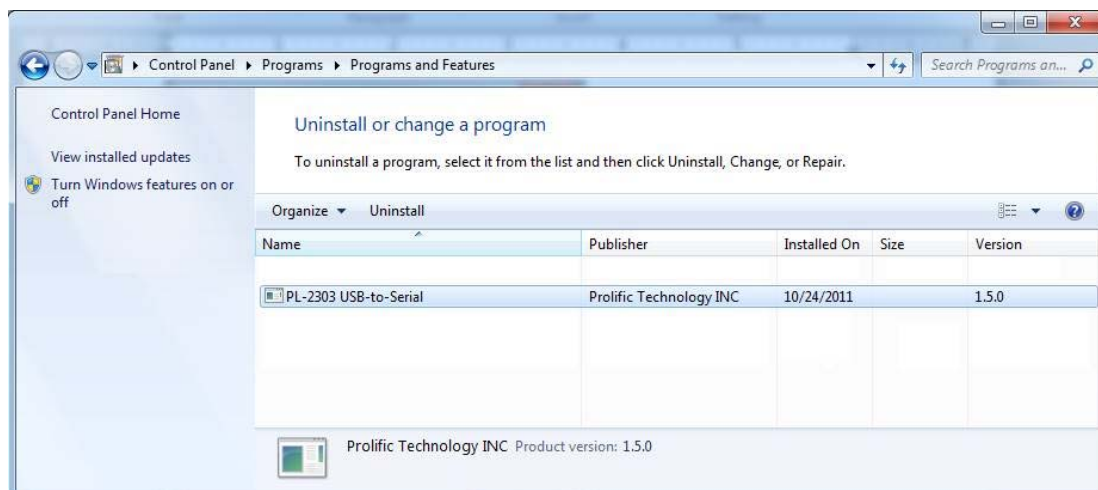
2. It will lead you to the same procedure as step 2 to 4 of Method 1.

**Note:** Instead of running above file, if you insert Installation CD the second time, the CD will auto run again and system will then detect the driver installed already and ask you to confirm the same removal procedure.

## 8.2 Driver Un-installation For Windows Vista /Win 7 (32 & 64 bits)

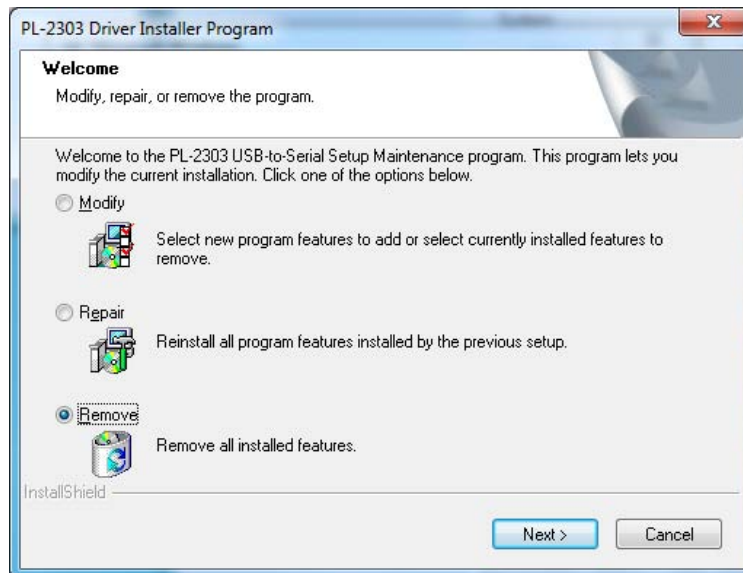
### 8.2.1 Method 1 – Programs and Features

1. Double click “Programs and Features” under “Control Panel”.

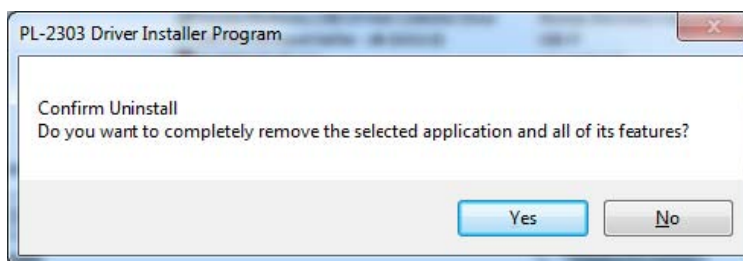




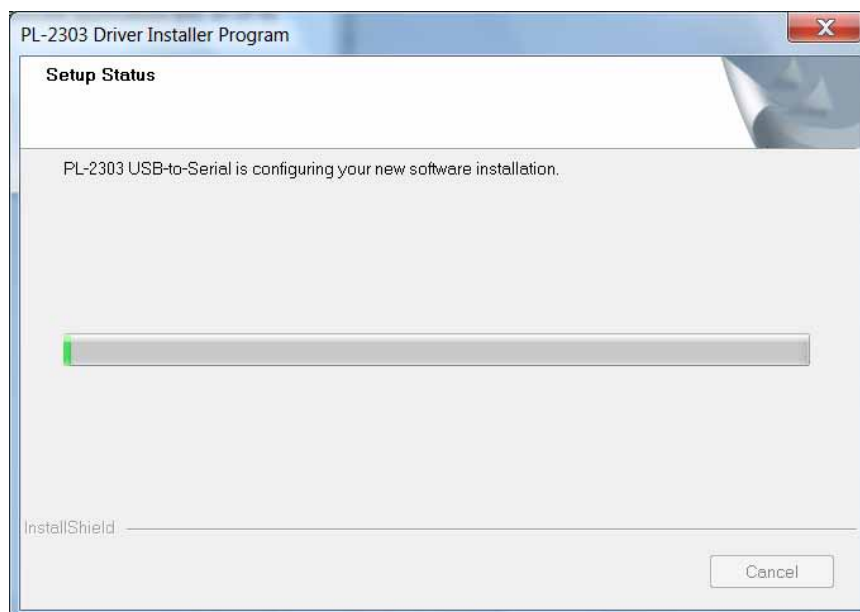
2. Right click on **"PL-2303 USB-to-Serial"** and then click on Uninstall to remove the driver. You may get "elevation prompt" of "(UAC)" if UAC has been turned ON in your Windows Vista/Win 7 OS (see [FAQ](#) for details). Else a **Welcome** window will pop up as follows. Select **"Remove"** and click **"Next>"**.



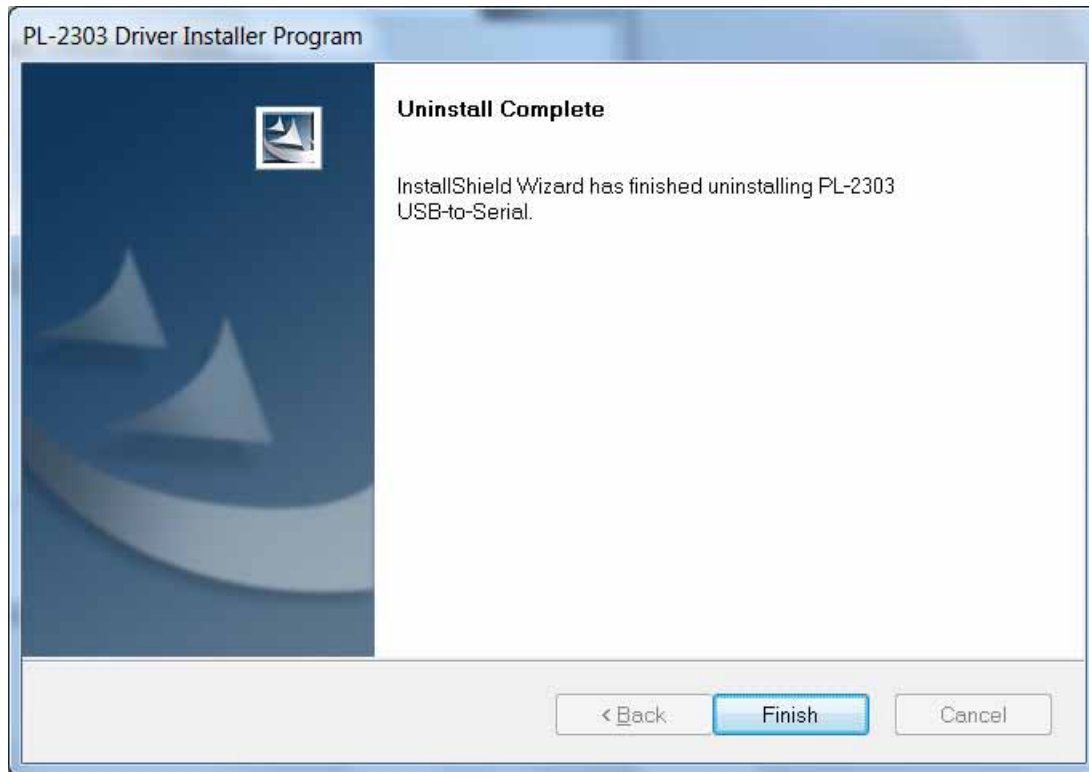
3. Click **Yes** button to continue.



4. Then you will get **Setup Status** window as follows.

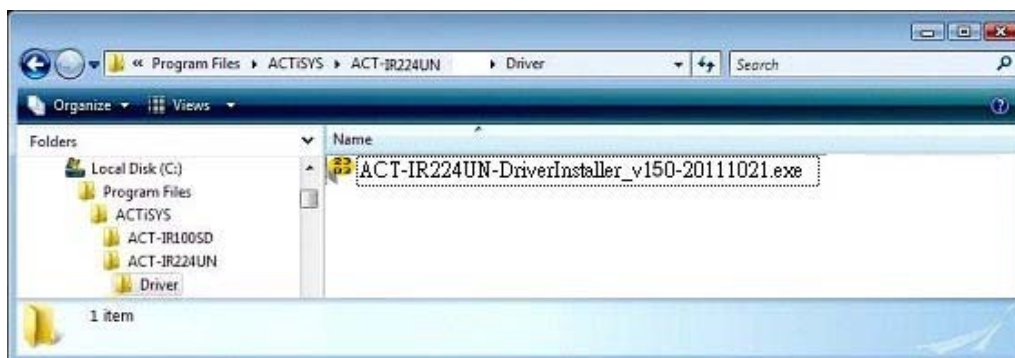


5. Click **Finish** button to complete the Un-installation as below.



### 8.2.2 Method 2 - Driver Installer

1. From C:\Program Files\ACTiSYS\ACT-IR224UN\Driver, run  
"ACT-IR224UN-DriverInstaller\_v1.7.0-20120801.exe".



You may get "elevation prompt" of "(UAC)" if UAC has been turned ON in your Windows Vista/Win 7 OS (see [FAQ](#) for details). Else it will lead you to the same procedure as Method 1.

2. **Note:** Instead of running above file, if you insert Installation CD the second time, the CD will auto run again and system will then detect the driver already installed and ask you to confirm the same removal procedure.



## 9. CONSUMER IR PROTOCOL

TV/DVD remote control supports consumer IR (CIR) protocol which is the use of infrared to control consumer products (like TV, DVD player, etc.) using popular NEC IR or similar kind of ASK based protocol. In fact, this usage has no direct link with IrDA as the protocol used by remote controls are quite different from the protocol used by the IrDA protocol suite, except both uses infrared technology.

So, based on the requirement, you may be looking for IR Blaster solution. An IR Blaster is a device, which, after learned, can emit or blast an IR signal much like your remote control. This device is connected to PC serial port and is aimed at your opposite device like TV, set top box, ect. if your need is of that kind of device.

We have similar kind of device called ACT-IR200L (Multi-standard, IrDA & ASK based) but this device is limited by what IR signals. It can correctly recognize from opposite remote controller signal and correctly emit which opposite remote controller can recognize. So you can buy one and test with your application using free third party software available on net.

To get the USB interface support, you can use ACT1-201, USB to RS232 conversion cable, in combination to get USB virtual COM port support for initial prototype test. For mass order we can later, consider your request to provide USB interface support adapter.

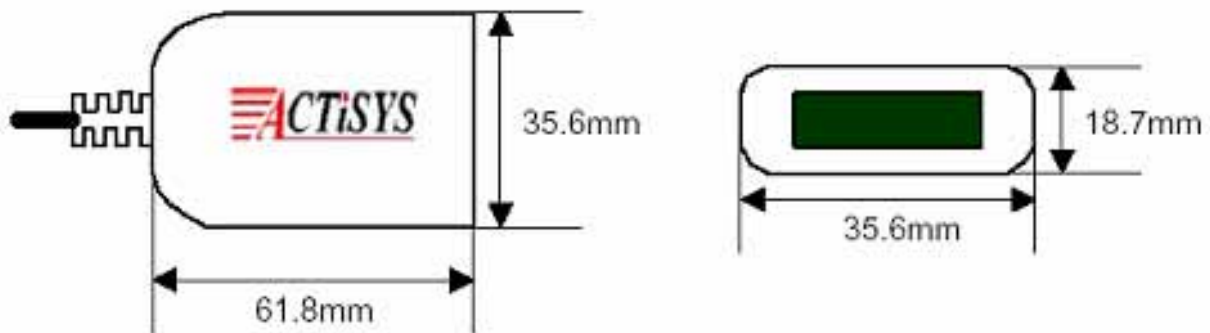
Here are some URLs that might help.

- 1). IRCommand2 hardware support list shows  
ACT-IR200L : <http://www.wdpsoftware.com/IRC2/hardware.htm>  
WDPS : <http://www.wdpsoftware.com/>  
Download software & document :  
<http://www.wdpsoftware.com/IRC2/download.htm>
- 2). ACT-IR200L uses CS8130 chip inside. The datasheet of that chip can be found at  
[http://www.cirrus.com/en/pubs/proDatasheet/CS8130\\_F1.pdf](http://www.cirrus.com/en/pubs/proDatasheet/CS8130_F1.pdf).
- 3). This IR Transceiver document is helpful:  
<http://www.vishay.com/docs/80071/dataform.pdf>.
- 4). Snap Stream used IR200L in the past for remote control but stopped doing so sometime ago.  
See below:  
<http://snapstream.helpserve.com/Knowledgebase/List/Index/>.
- 5). Open source codes for IR200L learning SW:  
<http://www.lirc.org/>,  
<http://winlirc.sourceforge.net/>.

## 10. LED BEHAVIOR

Status	Behavior
Power on	LED <b>on</b> for one second
Standby and receiving	LED <b>off</b>
Transmitting	Blinks rapidly but weak

## 11. IR DONGLE DIMENSIONS



Cable Length: 120 cm.

## 12. CHARACTERISTICS AND SPECIFICATION

Parameter	MIN.	TYPICAL	MAX.	Units
DC supply voltage		5.0	5.2	V
Supply voltage, VSS		0		V
Operating temperature range, TA	0		60	°C
DC current (Ready mode)		15	20	mA
DC current (Active mode)		60	100	mA
Infrared Transmitting range	1	158	200	cm
USB signal threshold level	+4.8	+5V	+5.5	V

## 13. APPENDIX : TURN UAC On/Off in WINDOWS VISTA /WIN 7/8

### 13.1 Check current UAC (User Account Control) Status

1. Go to Control Panel => **Security Center**

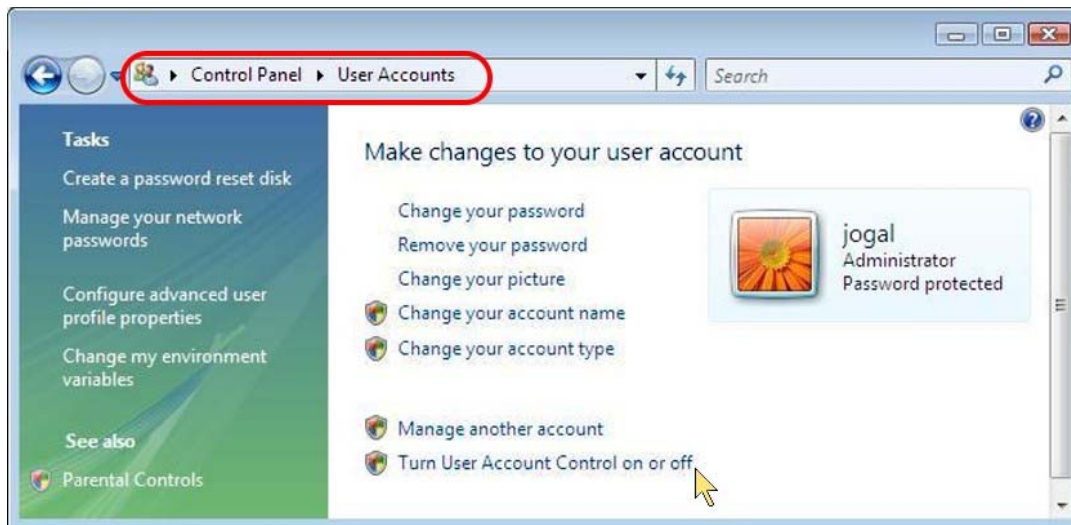


2. You can see current status of UAC (**On** or **Off**) like below:



## 13.2 Turn On / Off UAC

1. Go to Control Panel => User Accounts, you can see below window. Click "Turn User Account Control on or off" button.



2. You can **turn either on (checked) or off (unchecked) UAC** by clicking the following check box as below.



## 14. WARRANTY INFORMATION

ACTiSYS Corporation warrants the first end-user purchaser, for a period of 1 year from the date of purchase, that this wireless interface (The Product) will be free from defective workmanship and materials, and agrees that it will, at its option, either repair the defect or replace the defective Product or part thereof at no charge to the purchaser for parts or for labor.

This warranty does not apply to any appearance items of the Product, any consumable items such as paper, ink ribbon, or batteries supplied with the Product, or to any equipment or any hardware, software, firmware, or peripheral other than the Product. This warranty does not apply to any Product the exterior of which has been damaged or defected, which has been subjected to misuse, abnormal service or handling, or which has been altered or modified in design, construction or interfacing. Tampering with Label Voids Warranty.

In order to enforce the rights under this limited warranty, the purchaser should mail, ship or carry the Product, together with proof of purchase, to ACTiSYS.

The limited warranty described above is in addition to whatever implied warranties may be granted to purchasers by law. To the extent permitted by applicable law, ALL IMPLIED WARRANTIES INCLUDE THE WARRANTIES OF MERCHANT ABILITY AND FITNESS FOR USER ARE LIMITED TO A PERIOD OF 1 YEAR FROM THE DATE OF PURCHASE. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Neither the sales personnel of the seller nor any other person is authorized to make any warranties other than those described above, nor to extend the duration of any warranties beyond the time period described above on behalf of ACTiSYS Corporation.

The warranties described above shall be the sole and exclusive remedy available to the purchaser. Correction of defects, in the manner and for the period of time described above, shall constitute full satisfaction of all claims, whether based on contract, negligence, strict liability or otherwise. In no event shall ACTiSYS Corporation be liable or in any way responsible, for any damages or defects in the Product which were caused by repair or attempted repairs performed by anyone other than ACTiSYS technician. Nor shall ACTiSYS Corporation be liable or in any way responsible for any incidental or consequential economic or property damage. Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you.





## 15. CONTACT INFORMATION

**Go WIRELESS WITH ACTiSYS IR**



The graphic features the ACTiSYS logo at the top center with the tagline "The Wireless Infra-red Expert". Below the logo, three bullet points list the products: "◆ IrDA Protocol Software For Portable Devices", "◆ IrDA Test Software For Hardware Systems", and "◆ IrDA Printer And Computer Adapters". The central part of the graphic is a collage of images showing various devices connected by red lines, representing IrDA technology. These include a printer, a PDA, a mobile phone, a laptop, a digital camera, and a handheld device. In the center, there are three inset images showing specific IrDA adapters: "IR100M/1000M", "IR2000L", and "IR220L/L+". Above the central collage, the text "115.2K, 4M and 16M bps" is displayed.

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