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## *ACT-IR224UN-Li*

### *USB to RAW SIR Serial Adapter for*

### *Mac User's Manual*



August 25, 2009

Version 1.1.9.1.1

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## REVISION HISTORY

Revision History		
Revision	Date	Comment
0.1	10/05/2006	Draft version
1.0	10/30/2006	Initial release
1.0.1	01/03/2007	Extracted Chapt. of detailed description for models & IR pulse format
1.1	01/25/2007	<ul style="list-style-type: none"> <li>• Added new configuration models and re-edited the chapter</li> <li>• Expanded function models to include competitors' compatible models</li> </ul>
1.1.1	04/14/2007	Removed IrReady label from dongle case; added CRoHS logo
1.1.2	04/25/2007	<ul style="list-style-type: none"> <li>• Revised Un-installation Chapters for utility &amp; driver; added FAQ</li> <li>• Modification in Installation Package for one time removal of both utility &amp; driver at a click</li> </ul>
1.1.3	05/16/2007	• Not released officially. Only for Internal use
1.1.4	05/22/2007	<ul style="list-style-type: none"> <li>• Modification In Utility GUI (COM Port Listing, Check For IR224UN-Lx During Launching Etc)</li> <li>• Removed Installation Package For Utility Program.</li> <li>• Modified Chapter Of Installation &amp; deleted section of Configuration insatallation &amp; Chapter of Configuration un-installation</li> <li>• Modified Chapter 14 for USB spec 2.0</li> </ul>
1.1.4.1	05/30/2007	• Rewrite Chapter of General setup procedure. Added section of "Using configuration utility to check"
1.1.5	08/28/2007	<ul style="list-style-type: none"> <li>• Included Driver installation/un-installation procedure under Windows Vista OS.</li> <li>• Included "UAC" Security features of Windows Vista OS in FAQ section &amp; Appendix.</li> <li>• Omitted IR mate 210 function</li> </ul>
1.1.6	09/27/2007	<ul style="list-style-type: none"> <li>• Firmware upgraded from version 1.2 to 1.3</li> <li>• Modified in Configuration Utility (based on firmware change)</li> <li>• FAQ updated in User Manual</li> </ul>
1.1.7	10/17/2007	• Added Chapter 4 Special Notice & System Requirement
1.1.8	11/05/2008	<ul style="list-style-type: none"> <li>• System requirement included Win CE, Linux, &amp; Mac</li> <li>• Customized to emulate IR220Lx only. Support for all other models are removed.</li> <li>• Configuration Utility is removed.</li> </ul>
1.1.9	6/17/2009	• Added installation chapter, installation check section and uninstallation section for Mac.
1.1.9.1	7/22/2009	• Revised back driver file for Win to previous version (Latest one still not qualified.)
1.1.9.1.1	8/25/2009	• Substract IR224UN-Li for Mac user Only

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## 1 FEATURES

- a. **ACT-IR224UN-Li** Supports 8 baud rates: 1.2k, 2.4k, 4.8k, 9.6k, 19.2k, 38.4k, 57.6k and 115.2k bps.
- b. 1.63  $\mu$ s IR pulse.
- c. No IrDA<sup>®</sup> protocols supported, only Raw IR.
- d. Supports Virtual COM port. Nothing or minimum changes in user's software which are already working with above mentioned adapters.
- e. 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. Designed for Windows XP Certified logo drivers.
- i. Supports Windows 98/ME/2000, Win XP (32 & 64 bits)/Vista (32 & 64 bits), Mac OS (both Intel & Power PC), Linux, Windows-CE (ARM & x86).

## 2 OVERVIEW

Many customers have used ACTiSYS RS232 Raw IR adapters for a long time. But since RS232 has been not now a standard COM port on current notebook PC any more, it then becomes an issue for them. Some customers may use an USB-to-RS232 conversion cable to solve this problem. But still it is not a good solution yet. ACT-IR224UN-Li is so designed for this purpose.

ACT-IR224UN-Li is an USB-to-IR adapter, which can generate a virtual COM port for user to transmit data with other IR devices without IrDA protocols required. And its driver will help user to make IR connection without changing any Application Program in new PC, which is only equipped with USB for COM port access.

## 3 PACKAGE CONTENT

ACT-IR224UN-Li package contains the following items:

- 1 ACT-IR224UN-Li USB to Serial SIR Adapter x1
- 2 Installation CD x1, which includes:
  - a. Device driver installer
  - b. User's Manual.
  - c. Quick Installation Guide

## 4 SPECIAL NOTICE & SYSTEM REQUIREMENT

### 4.1 Special Notice

#### 4.1.1. Timing of COM Port Closing

ACT-IR224UN-Li uses DTR and RTS signals to configure IR communication baud rate and it has 256 bytes inbound buffer & 256 bytes outbound buffer. Normally there is no flow control protocol for this Raw IR transmitting dongle. So, if the sending side completes its sending but unfortunately some pending data in dongle buffer still haven't complete its transmission before you close the COM Port, DTR and RTS signal will get change consequently, which will also cause the baud rate change. In such a case the receiver will get junk data. To prevent this, we recommend giving small amount of delay 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.

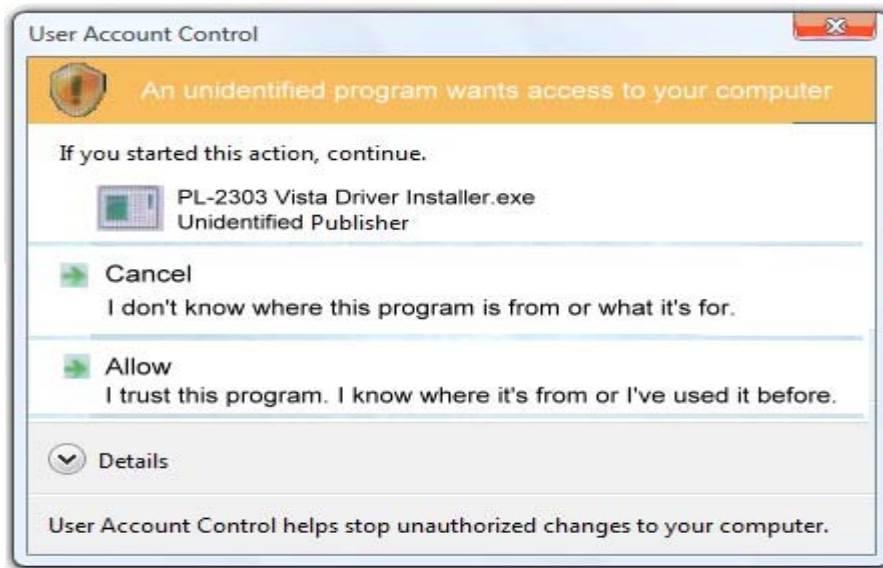
#### 4.2 System Requirement

1. Windows 2000/XP/Vista, Win CE, Mac or Linux.
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 ACT-IR224UN-Li, occasionally at the end of communication, a few bytes show as junk in receiver side. Why? And how to solve?
- **A1:** Please refer to item 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 item 4.1.2 "Improve the Throughput" in section 4.1 Special Notice.
- **Q3:** While un-installing the ACT-IR224UN-Li 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 ACT-IR224UN-Li 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 11 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 OS has added a new Security Feature called as “**UAC (User Account Control)**”. So, for Windows Vista 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**”, **Windows Vista** will run most applications with **standard user permissions** even if the user is an **administrator**. If a user wishes to run a program that requires **administrator permissions**, they **must give consent** through a **User Account Control** prompt. Please have a **further check** on **this feature** on the following web pages:

- 1) <http://technet.microsoft.com/en-us/windowsvista/aa906021.aspx>
- 2) <http://www.tweak-uac.com/what-is-uac/>

## 6 MIGRATION FROM OTHER MODELS

### 6.1 For ACT-IR220Li, ACT-IR220L+ & ACT-IR220LN Series Users

Your customized application doesn't require any change. Please make sure that your application supports virtual COM Port. Some application cannot handle COM Port greater than 4 or 9. Such application needs to be updated.

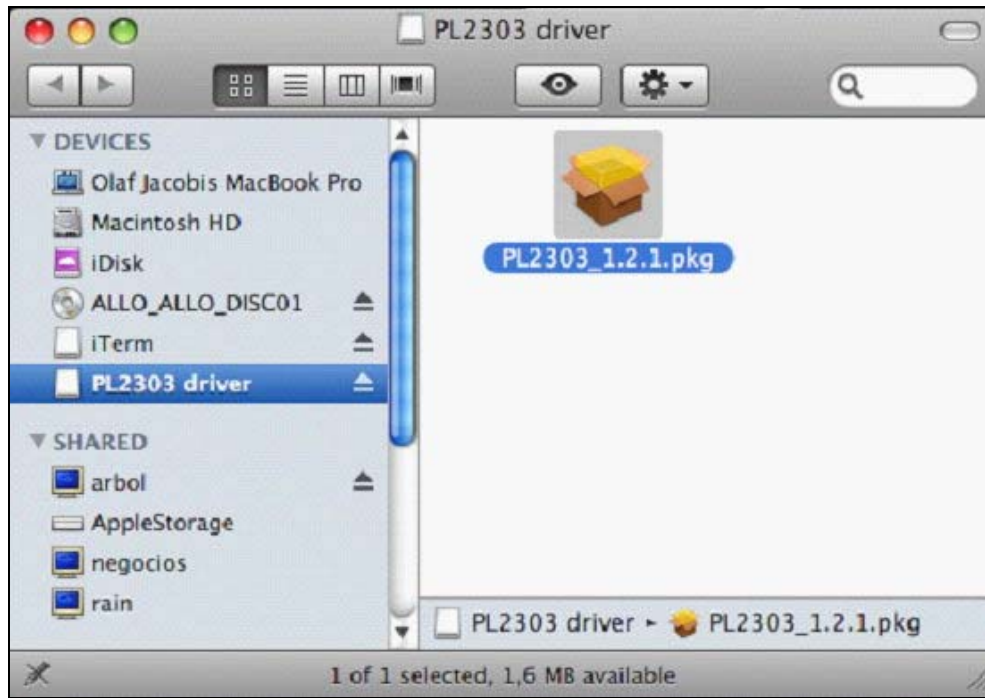
## 7 GENERAL SETUP PROCEDURE – Windows, Mac & Linux

- a) **Make sure USB dongle is NOT plugged into PC until you have installed the driver.**

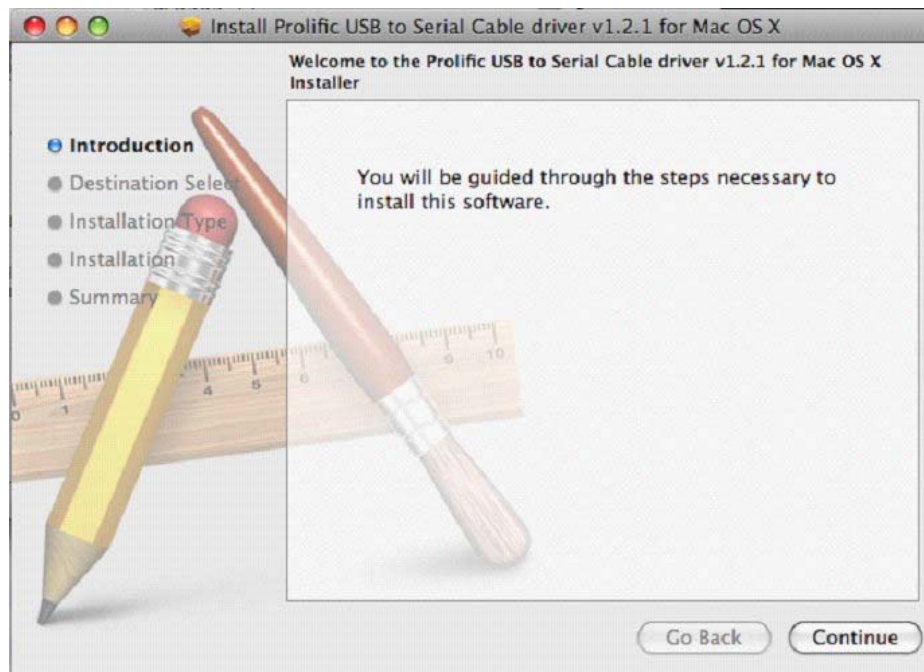
- b) From “**Add or Remove Program**” in **Control Panel** of Win 98/ME/2K/XP, make sure there is no driver named: “**PL-2303 USB-to-Serial**” in PC. Or from “**Programs and Features**” in **Control Panel** of Windows Vista, check if “**PL-2303 Vista Driver Installer**” exists in PC. If exists, please **remove it first.**
- c) Insert the installation CD and it will install driver for Windows 2K/XP/Vista automatically.
- d) **Manually SETUP under WinCE, Mac or Linux OS:**  
It will **not** autorun for you under *WinCE, Mac or Linux*. Please direct browse the installation CD to find the path: D:\Driver (assume D:\ is your CD driver) in this case. Then you can select the right folder under it , say “Linux\_RedHat” for example and extract the packaged file and *run setup yourself under WinCE, Mac or Linux*.
- e) Sometimes you may find it not AUTORUN in Windows, especially in Vista. Make sure the “**AUTORUN**” option under “**Control Panel=> AUTOPLAY**” has been selected in Vista. Otherwise please browse the CD and run  
**ACT-IR224UN-Lx-Setup-v1.1.9.1-090722.exe** manually.
- f) Plug ACT-IR224UN-Li adapter into USB port. It will lead you to a “Found New Hardware” procedure to complete the installation.

## 8 INSTALLATION UNDER Mac OS

- 1 Insert the CD into your Mac Machine. It will automatically run the file **PL2303\_1.2.1r2.dmg**.
- 2 Then you will see the installer file : **PL2303\_1.2.1.pkg** as below.
- 3 Double click the file “**PL2303\_1.2.1.pkg**”. Then the installation starts.



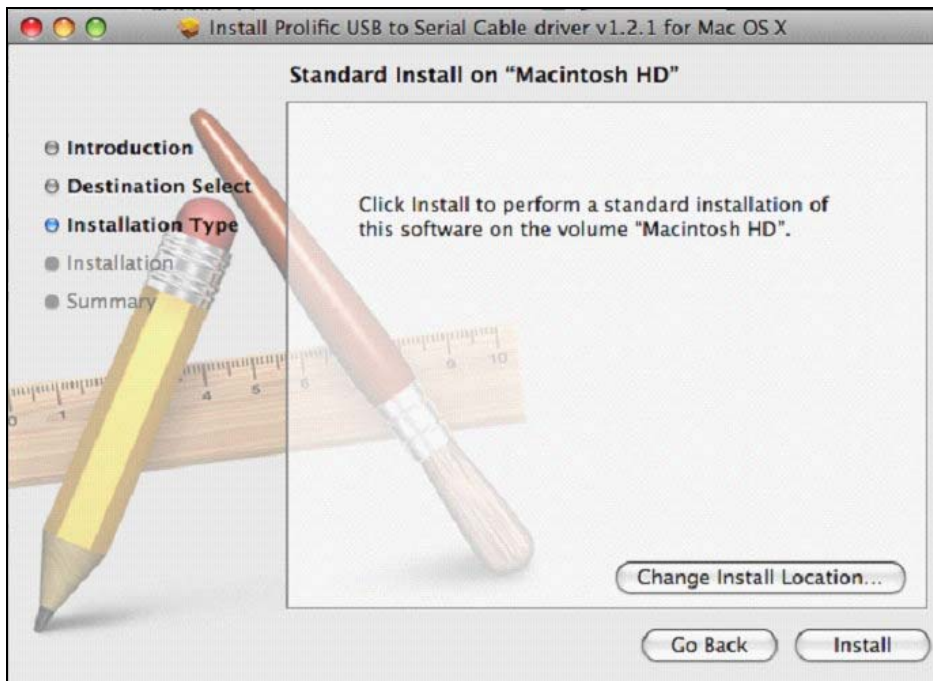
4 You will see the **Welcome** Window as below: Click “**Continue**”.



5 After select a Destination, click **“Continue”**.



6 Then click **“Install”** to continue when seeing below window?



- 7 You will see below window asking you to type your "Name" and "Password" you originally used for logging in to your Mac Machine in case you have set it in your "screen saver" setting. Enter them and click "OK: to continue.

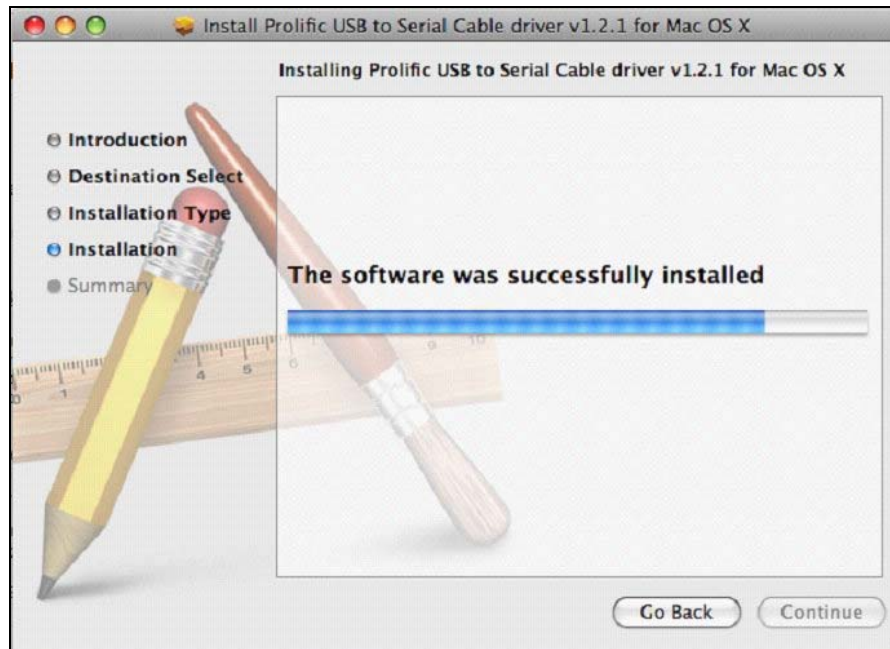


- 8 You will be asked to confirm the installation as below, click "Continue Installation" to continue.

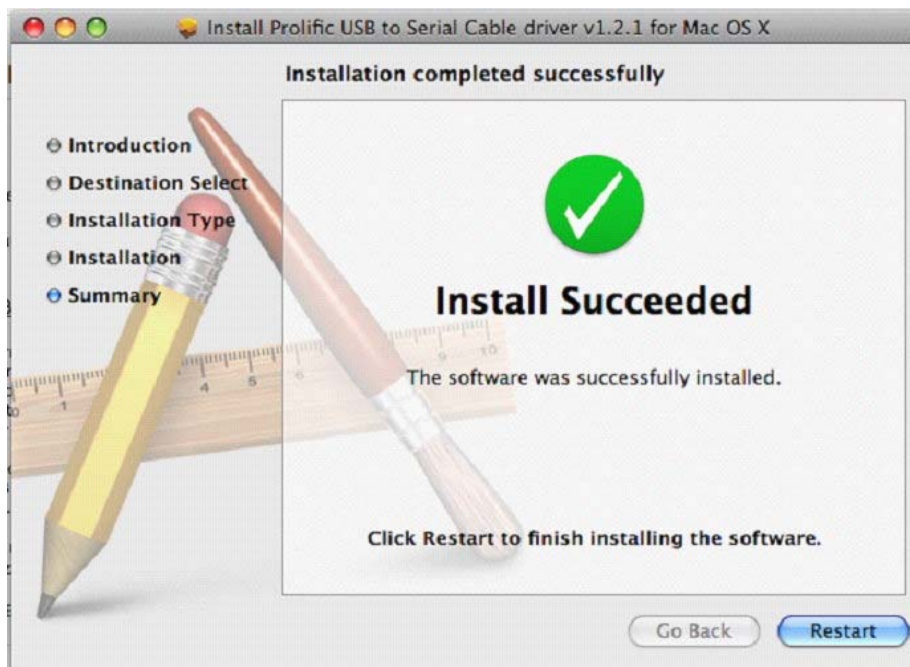


- 9 You will see the installing window under processing.





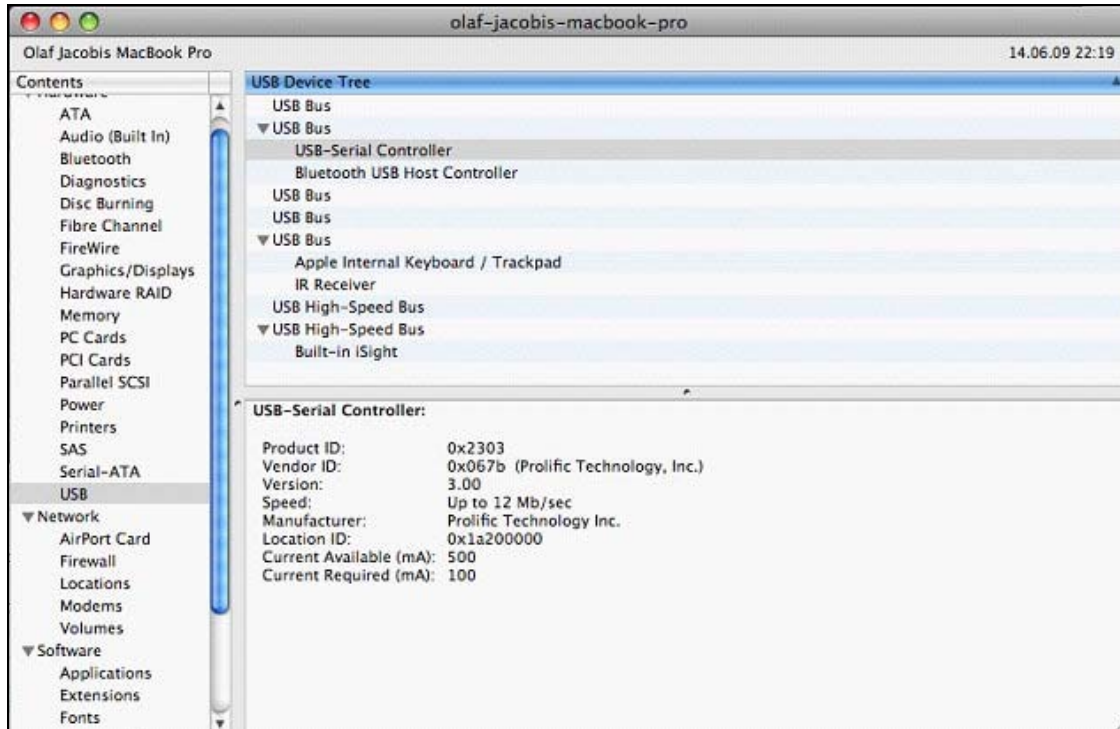
- 10 Then you will see the installation Succeeded as below.  
Click "Restart" to restat your computer and complete the installation.



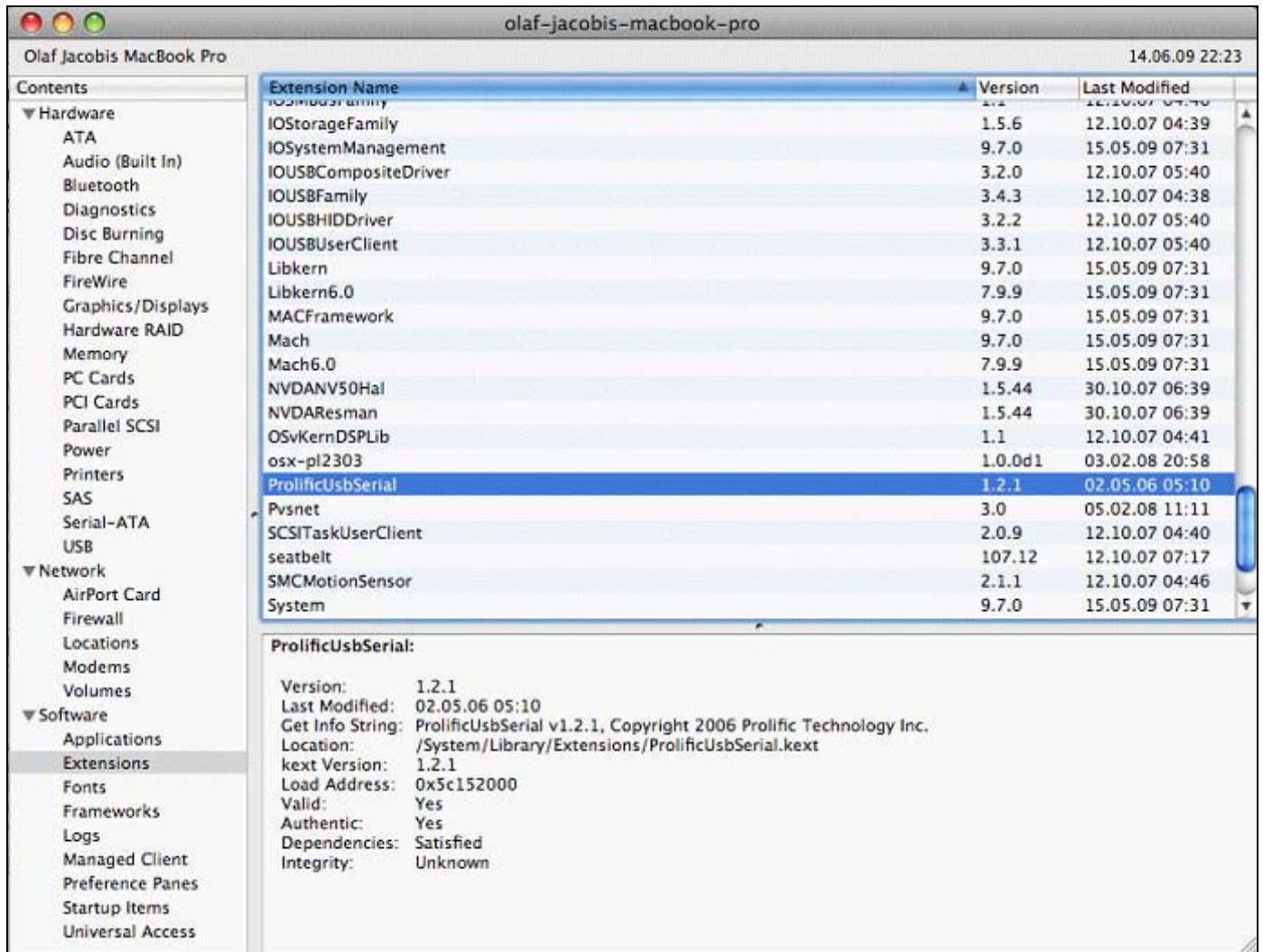
## 9 INSTALLATION CHECK

### 9.1 Check from Apple System Profiler in Mac Machine

1. It can be accessed through `/dev/tty.usbserial`.
2. Open the Apple System Profiler (Applications=> Utilities) to check IR224UN connected to USB port.



- This is also the System Profiler showing the Extension loaded to support the IR224UN using the prolific chipset



- You can also see a device named "**PL2303-xxxxxxx**" is installed by issuing the command (as root!) like below:

**`screen /dev/tty.PL2303-xxxxxxx`**

## 10 UN-INSTALL THE DRIVER

### 10.1 Driver Uninstallation for Mac

1. Go to terminal
2. key in "cd /system/library/Extension"
3. key in "kextunload ProlificUSBSerial.kext"
4. key in "rm -r ProlificUSBSerial.kext"
5. This should remove the driver from your Mac machine.

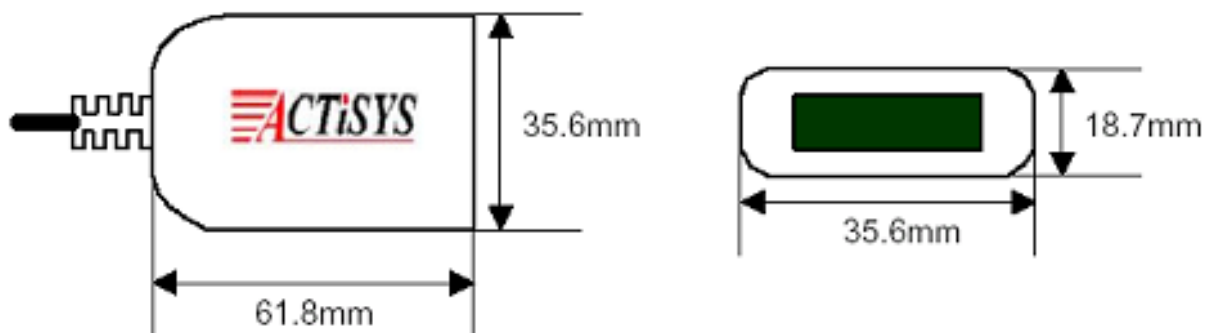
## 11 OPERATION OF ACT-IR224UN-Li

Establish IR Connection with another PC after confirming the detection of ACT-IR224UN-Li as indicated above. Place any other Raw IR device (e.g., ACT-IR220L+). Launch your Communications application like "HyperTerminal" in the Windows or any other application.

## 12 LED BEHAVIOR

Status	Behavior
Power on	LED on for one second
Standby and receiving	LED off.
Transmitting	Blinks rapidly but weak

## 13 ACT-IR224UN-Li DIMENSIONS



Cable Length: 120 cm.

## 14 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

## 15 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.



## 16 CONTACT INFORMATION

GO WIRELESS WITH **ACTiSYS IR**



**ACTiSYS**  
The Wireless Infra-red Expert

- ◆ IrDA Protocol Software For Portable Devices
- ◆ IrDA Test Software For Hardware Systems
- ◆ IrDA Printer And Computer Adapters

115.2K, 4M and 16M bps

IR100M/1000M

IR2000L

IR220L/L+

The graphic features a central red background with the ACTiSYS logo and tagline. Below the logo is a list of three bullet points. Underneath the list, the text '115.2K, 4M and 16M bps' is displayed. The central part of the graphic is divided into three panels: the left panel shows a computer mouse and keyboard with a red IrDA adapter labeled 'IR100M/1000M'; the middle panel shows a black IrDA adapter labeled 'IR2000L'; the right panel shows a black IrDA adapter labeled 'IR220L/L+'. Surrounding these panels are various electronic devices connected by red lines, including a printer, a PDA, a mobile phone, a digital camera, a laptop, and a desktop monitor.

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