



921 Corporate Way, Fremont, CA 94539, USA
Tel: +1-510-490-8024 Fax: +1-510-623-7268
Web: <http://www.actisys.com> E-mail: irda-info@actisys.com

ACT-IR100UD

USB to IrDA SIR Adapter

User Manual



March 10, 2008
Ver. 1.0.0

© Copyright 2008 ACTiSYS Corporation
All Rights Reserved

TABLE OF CONTENTS

REVISION HISTORY	3
PRECAUTIONS	4
1. FEATURES.....	5
2. OVERVIEW.....	5
3. PACKAGE CONTENT	5
4. SYSTEM REQUIREMENT	5
5. SETUP – UTILITY & DRIVER INSTALLATION.....	6
5.1 Configuration Utility Installation.....	6
5.2 Driver installation	8
6. INSTALLATION CHECK	10
6.1 Add or Remove Programs Check	10
6.2 Device Manager Check – COM Port Check.....	10
7. UNINSTALLATION PROCEDURE	11
7.1 Utility uninstallation	11
7.2 Driver Uninstallation	13
8. OPERATING ACT-IR100UD	14
9. COMMUNICATION PARAMETER SETTINGS.....	15
9.1 The First Tab: Host Settings	16
9.2 Flow Control Note	16
9.3 The Second Tab: Discovery Timing Settings	17
9.4 The Third Tab: Primary Protocol Settings.....	18
9.5 Factory Default Settings	18
10. LED BEHAVIOR	19
11. CHARACTERISTICS AND SPECIFICATION	19
12. ACT-IR100UD DONGLE DIMENSIONS	19
13. WARRANTY INFORMATION.....	20
14. CONTACT INFORMATION	21

REVISION HISTORY

Revision History		
Revision	Date	Comment
1.0.0	03/10/2008	Initial release

ACTiSYS reserves the right to make changes without further notice to any products herein to improve reliability, function or design. ACTiSYS does not assume any liability arising out of the application or use of any product or circuit described herein.

All trademarks, logos, organizations or company names and product model names are owned by the respective organizations or companies.

PRECAUTIONS

To ensure trouble-free operation, please observe the following precautions:

Optical communications are easily affected by external light sources, weak batteries, transfer distance, transfer angle, etc.

Any of these conditions may cause a data transfer failure, incomplete or missing data. Make sure that the wireless interface is away from direct sunlight and other strong light source.

- Do not terminate arbitrarily during file transfer process between ACT-IR100UD and computers until finished. Otherwise ACT-IR100UD internal data integrity may be damaged, which is due to the violation of ACT-IR100UD.
- Do not expose the unit to moisture, as this will damage the internal circuitry.
- Do not expose the unit to extreme temperatures. It should not be placed in direct sunlight or in a closed vehicle, neither should it be placed near heaters nor other heat sources.
- Do not store the unit in a humid or dusty place.
- Use a soft, dry cloth to clean the unit. Do not use a wet cloth or any solvent.
- Do not drop the unit or handle the unit carelessly.

CAUTION:

- Never touch the pins of computer connection terminal. The internal circuits can be damaged by an Electro Static Discharge. If this device requires any servicing, use only an ACTiSYS service dealer, an ACTiSYS approved service facility, or an ACTiSYS repair service.
- When exchanging data with host computer, be sure the appropriate serial communication port is available and is not in conflict with other peripheral device or software.

1. FEATURES

- Supports mandatory IrDA[®] layer: IrPHY[™], IrLAP[™], IrLMP[™] and IAS[™].
- Supports upper layers TinyTP[™], IrCOMM[™], IrLPT[™], and OBEX[™] transport.
- Supports host baud rate from 1.2 kbps to 115.2 kbps, which is changeable by PC utility; IrDA baud rate from 9.6 kbps to 115.2 kbps, which is flexible setting by IrDA devices.
- Supports both IrDA Primary and Secondary mode, changeable via PC utility.
- Virtual COM port supported through Prolific USB to Serial device driver. Virtual COM has Less Latency time, average is 1.5 ms. The latency of a real COM port is about 0.5ms.
- Fully compliant with USB 2.0 (Full speed, 12 Mbps).
- USB chip has 256 bytes outbound buffer and 256 bytes inbound buffer.
- IrDA chip has 2048 bytes IR frame buffer and 2048 bytes Host buffer.
- Nothing or minimum changes in user software, which are already working with ACT-IR100SD RS232 serial adapter.
- No need any external power supply.
- Supports Windows 2000/XP/Vista. For MacOS, Linux, Windows-CE and other operating systems driver support, please contact ACTiSYS Technical Support (tech-support@actisys.com).

2. OVERVIEW

ACT-IR100UD is a highly integrated IrDA Intelligent dongle with USB interface to a host device that intends to have Infrared communication capability. ACT-IR100UD handles all the details regarding IrDA protocols. It sends and receives user data to and from the host device via the USB interface. Virtual COM port is created by Prolific USB to Serial device and its driver.

3. PACKAGE CONTENT

ACT-IR100UD package contains the following items:

- ACT-IR100UD USB to IrDA SIR Adapter
- Installation CD, which includes:
 - Quick Start Guide
 - Setup file for installing configuration utility, manual and driver
 - Device driver for Windows Vista & 2K/XP
 - User Manual

4. SYSTEM REQUIREMENT

- Windows 2000/XP/Vista.
- At least 256MB RAM (512MB is recommended).
- CPU Speed 1.8 GHz or above.
- USB 1.1 port (or USB 2.0).

5. SETUP – UTILITY & DRIVER INSTALLATION

- **Note1:** [Be Sure] ACT-IR100UD USB dongle is **NOT** plugged into PC **until** you have installed the driver.
- Insert ACT-IR100UD Installation CD in your PC.
In most cases this should start the installation automatically.
Otherwise browse the CD and double click “ACT-IR100UD-Setup-v1.0.0.exe” to start the installation.

5.1 Configuration Utility Installation

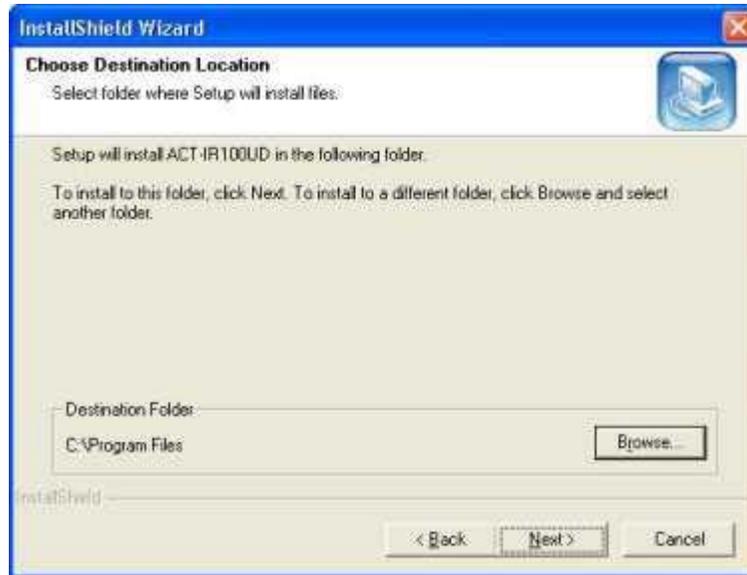
- A welcome screen for ACT-IR100UD configuration utility installer will show up. Click “**N**ext” to continue.



- A “License Agreement” window will show up as below. Click “Yes” to continue.



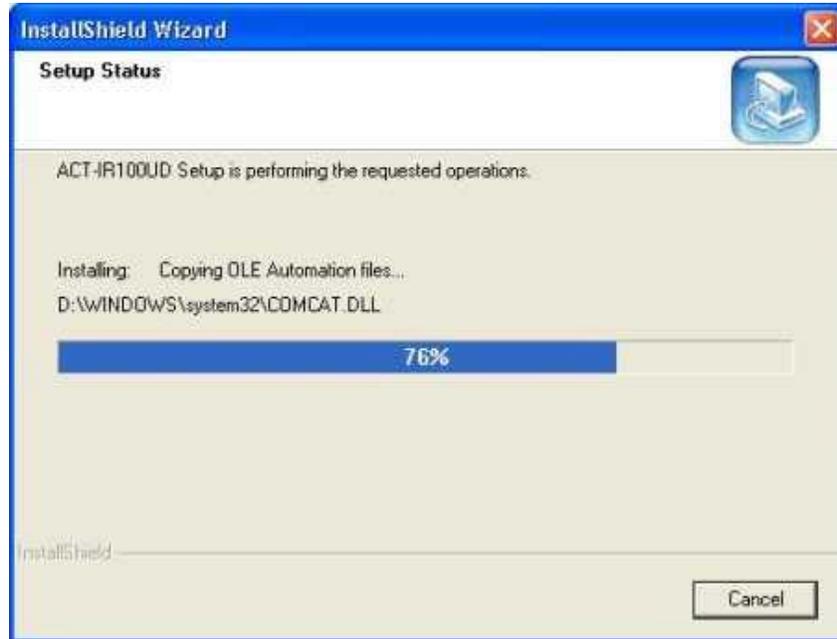
- Then a “Choose Destination Location” window will pop up as below. Click “**N**ext” to continue.



- You will be asked to “Select Program Folder”. Click “**N**ext” to continue.



- You will see a “Setup Status” window as shown below.



- Click “**Finish**” to end the Utility installation.

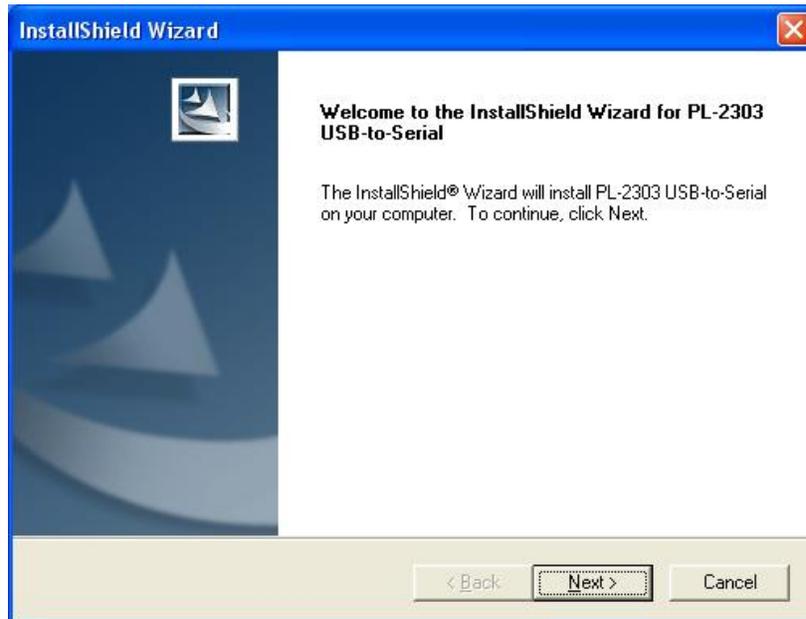


5.2 Driver installation

- After installing the Configuration Utility, setup will continue to install driver if you have not installed it beforehand (User can also select “**ACT-IR100UD-DriverInstaller.exe**” in CD to run manually).
- **Note:** If you have already installed the driver previously for any other application, the setup program “**ACT-IR100UD-Setup.exe**” will auto detect the driver “PL-2303 USB-to-Serial” exists in your PC and

will stop the installation automatically. Then you may skip this chapter.

- A welcome screen for ACT-IR100UD Driver installer will show up. Click “Next” to continue.



- Click “**Finish**” to close the Wizard window.

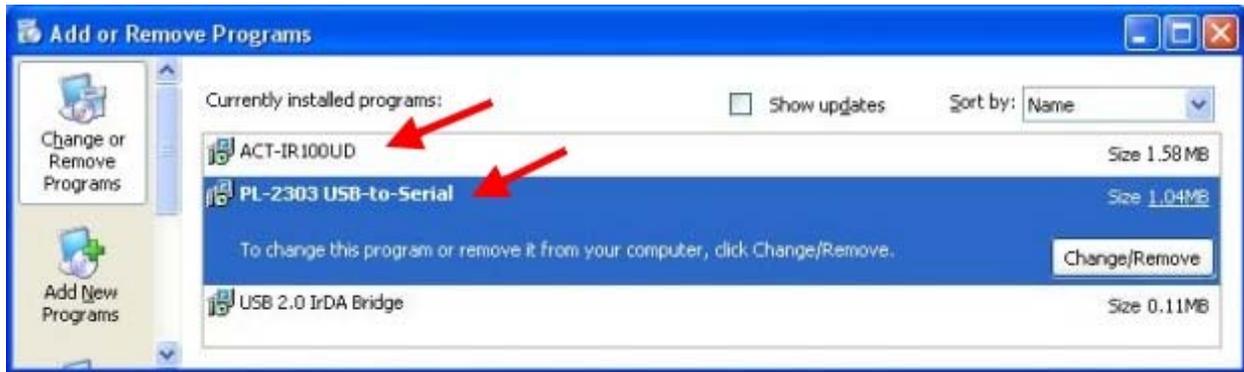


- Now plug ACT-IR100UD into USB port. System will pop up a “**Found New Hardware** “ bubble window at the right corner of Tool Bar and display the message: “**Prolific USB-to-Serial Comm Port**” the first time you plug in.
- This completes the configuration utility and driver installation. Now you need to confirm the installation as the next chapter.

6.INSTALLATION CHECK

6.1 Add or Remove Programs Check

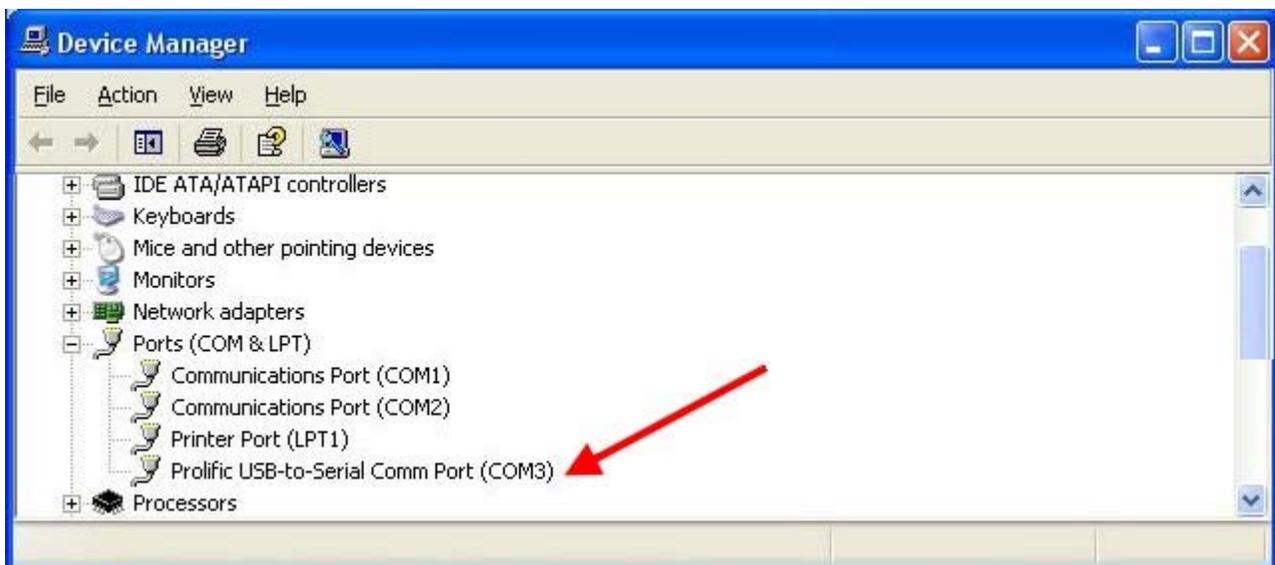
- Open the “Add or Remove Programs” window from **Control Panel**. Check if two programs exist: “ACT-IR100UD” and “PL-2303 USB-to-Serial”. See below:



Note: Instead of “PL-2303 USB-to-Serial” shown in Windows 2K/XP, it will show as “PL-2303 Vista Driver Installer” in Windows Vista OS.

6.2 Device Manager Check – COM Port Check

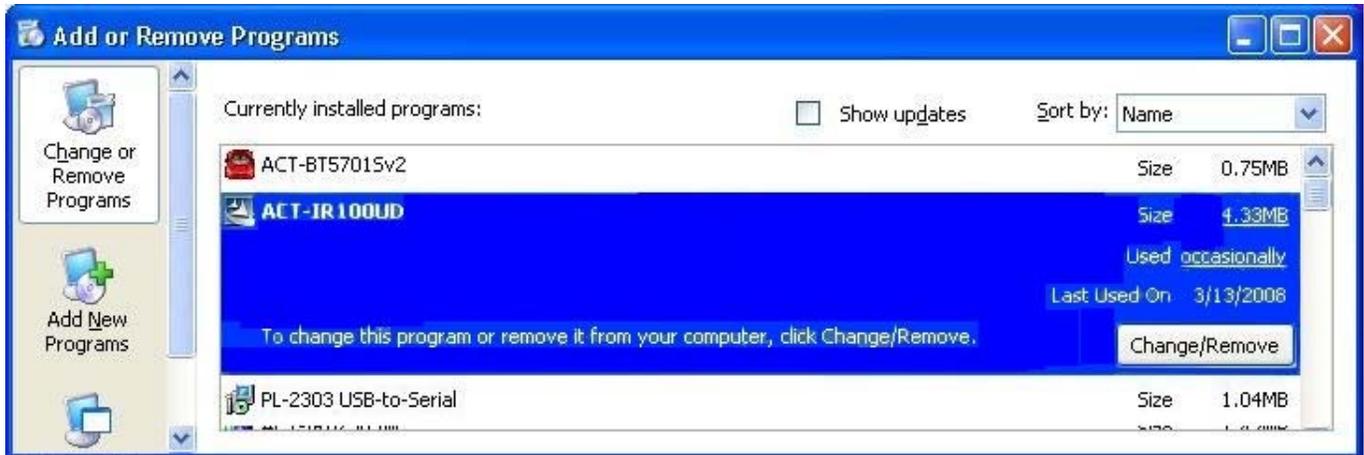
- To confirm if the installation is successful, look at the window from Device Manager.
- You will see the device described as “Prolific USB-to-Serial Comm Port (COMx)” installed under “Ports (COM & LPT)”, where COMx (e.g.,COM3) is the COM port number. This is the place you can check which virtual COM port this device is connected. See below.



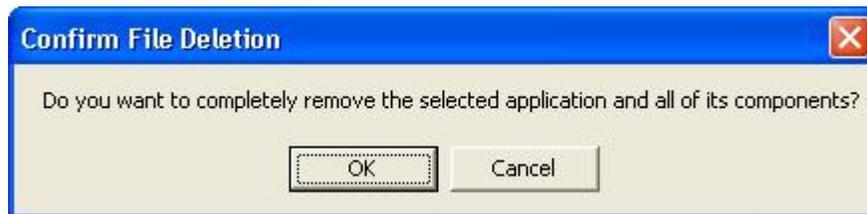
7. UNINSTALLATION PROCEDURE

7.1 Utility uninstallation

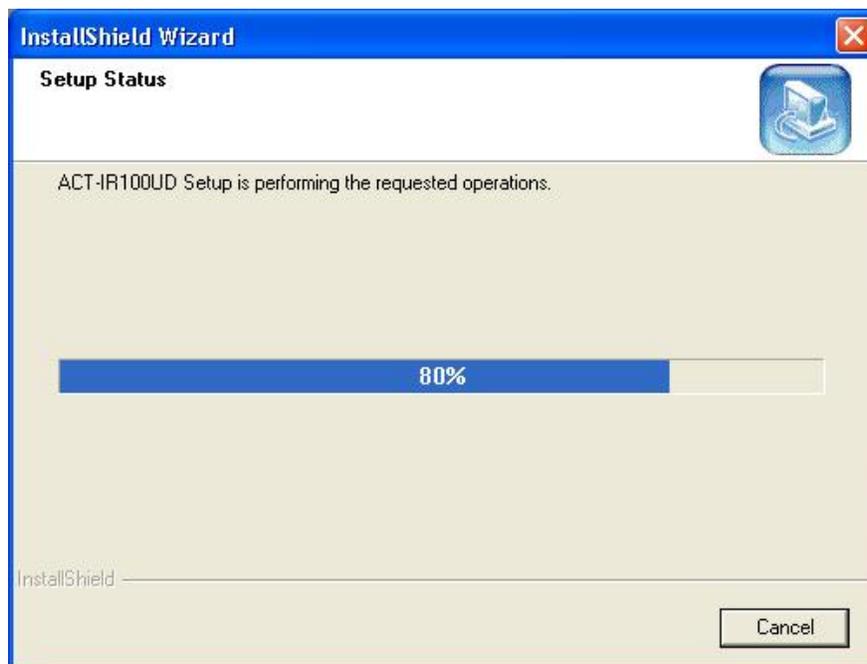
- Double click “**Add or Remove Program**” under “Control Panel”.

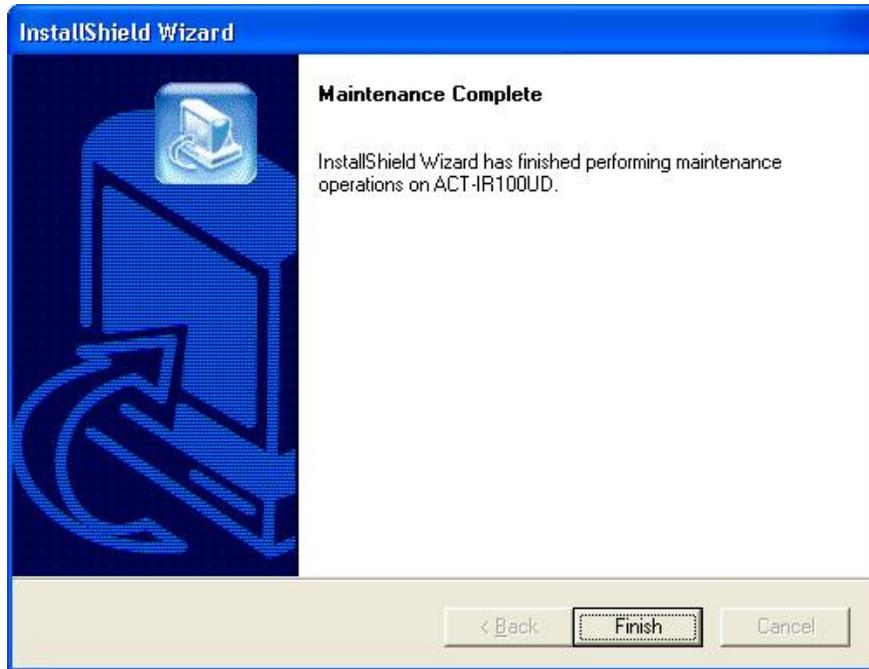


- Select “ACT-IR100UD” and click “**Change/Remove**” to remove the Utility.
- A “Confirm File Deletion” window will pop up. Click “OK” to continue.

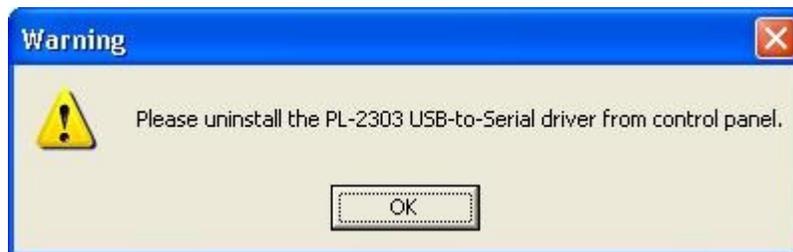


- Then you will see a “**Setup Status**” window as below.



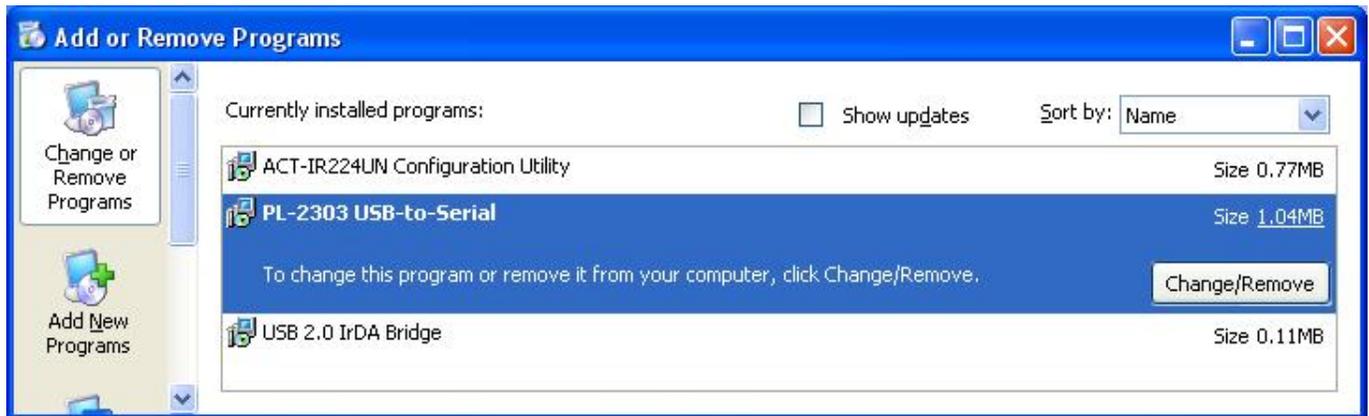


- When you see above **"Maintenance Complete"** window, click **"Finish"** to complete the Uninstallation. Then you will see below **"Warning"** message to remind you to continue to "remove Driver manually". Please refer to next section on "Driver Uninstallation".



7.2 Driver Uninstallation

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



- Select “PL-2303 USB-to-Serial” and click “**Change/Remove**” to remove the driver.



- Then the wizard will show “**PL-2303 Driver Uninstall Completed!**” and ask you to restart the computer. Select “**Yes**” and click “**Finish**” to restart your computer.

8. OPERATING ACT-IR100UD

ACT-IR100UD uses virtual COM port created by Prolific USB to serial driver to connect with the host. And DSR is an input signal for ACT-IR100UD. All the operating procedures of ACT-IR100UD are triggered by DSR signal of virtual COM port from HOST except the time when DSR is ignored by PC utility. See next Chapter of **“Configuration Parameter Settings”** for detail.

When DSR is pulled high level by HOST, ACT-IR100UD will send out discovery frames to outside and try to find some other IrDA devices if it is set to “Primary” mode.

Or ACT-IR100UD will be ready to receive discovery frame from any other Primary device if it is set to “Secondary” mode.

It depends on what mode you set in ACT-IR100UD.

When ACT-IR100UD is connecting to another IrDA device successfully via IR, it will pull DSR signal to high, which also means that Host can send and receive data frame to and from another IrDA device. When DSR is pulled to low, it means that IR link no longer exists now.

9. COMMUNICATION PARAMETER SETTINGS



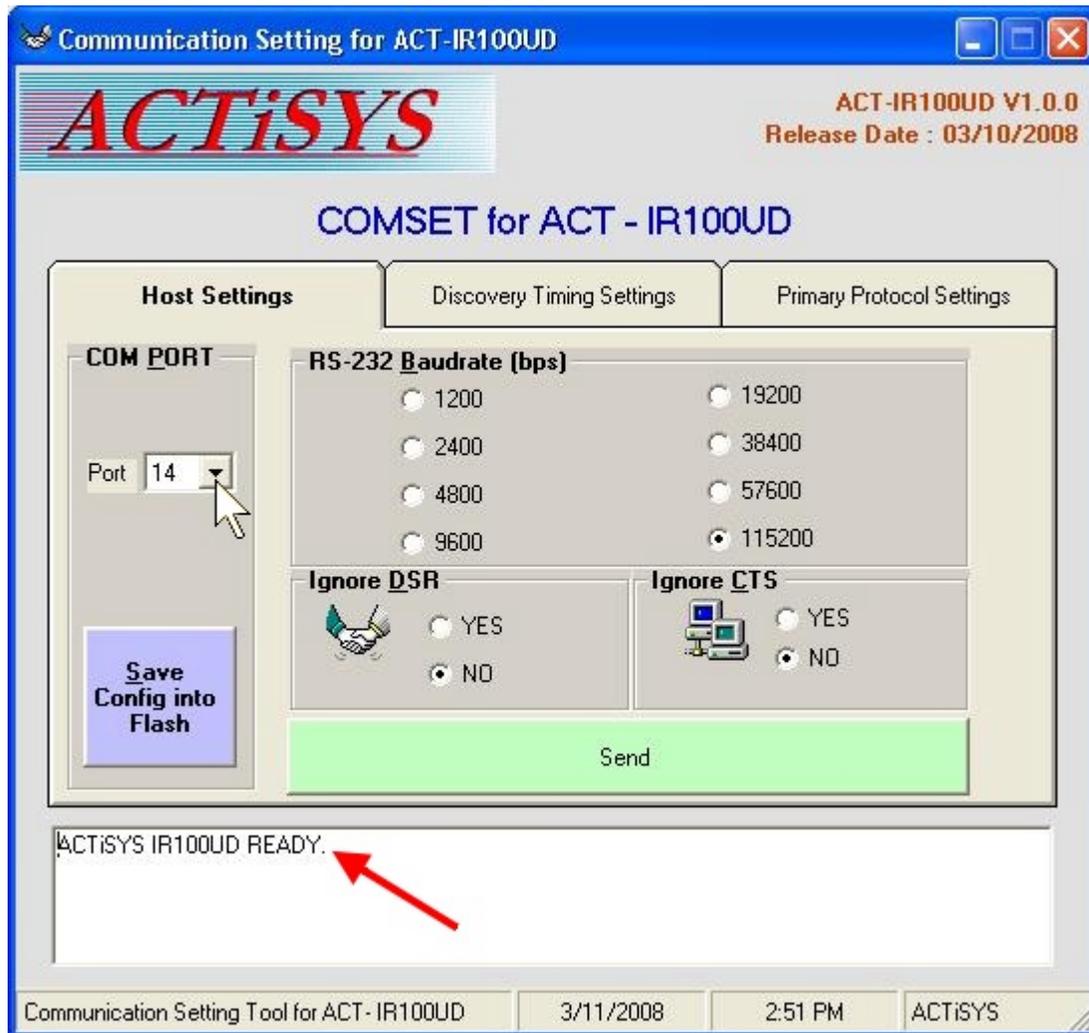
Above is a configuration utility to set parameters as per need. You can open this utility from:

Start => Program => ACTiSYS => ACT-IR100UD => ACT-IR100UD.

1. Plug in ACT-IR100UD dongle to USB port.
2. Check the correct COM port number which it is connected (Refer to [section 6.2](#) on “COM Port Check”).
3. Then select the correct COM port number at “Port” of “COM PORT” field as below figure. E.g., If your COM Port is 14, then you will see “ACTiSYS IR100UD READY” message as shown in below figure.

9.1 The First Tab: Host Settings

This is for baud rate selection and the hardware flow control.



9.2 Flow Control Note

Ignore CTS: If host device has no hardware flow control signals, only Tx, Rx and GND, then you have to select “YES” option. ACT-IR100UD will then pass the incoming data to host and not care the status of CTS (it will Ignore CTS). **Note: ACT-IR100UD is a buffer limited adapter (2K bytes for host and 2K bytes for IrDA).** If this option has been selected to “YES”, then it may cause data loss because of no flow control. Whereas data loss can be solved if user can send data segment by segment and every segment not exceeding 2K bytes. But normally we recommend to select “NO” option on this field..

Ignore DSR: If host system has no DSR signals, then this option should be set to “YES” to ignore DSR signal. This is what we recommend **only** when host device is Secondary. But since DSR signal will trigger ACT-IR100UD into Primary, if you select

“Primary/Secondary” on “Mode” option (on the 2nd tab) and set option to “Ignore DSR”, it will always be in Primary mode and no way to disconnect IrDA link once power on. In other words, once you set option “Ignore DSR” to “YES”, you will not be able to control ACT-IR100UD at all until power off and set it to “NO”. So normally we recommend to select “NO” on this option.

9.3 The Second Tab: Discovery Timing Settings

This is to set the Mode of ACT-IR100UD, the discovery slot number and discovery time interval.



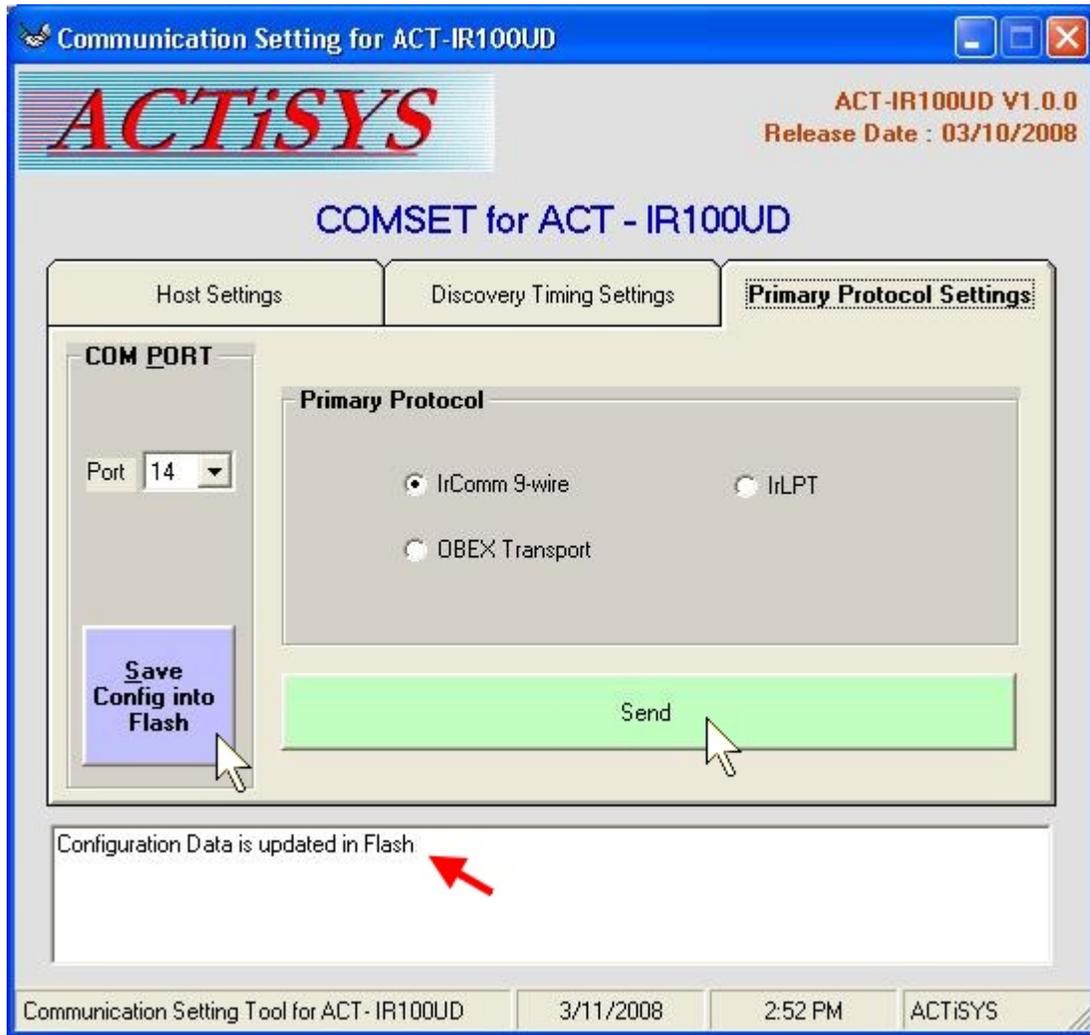
9.3.1 ACT-IR100UD supports both Primary and Secondary mode.

9.3.2 Discovery Slot can make discovery process faster or slower.

9.3.3 Discovery time should be 3 seconds in general. You can change it if you want the discovery process faster or slower.

9.4 The Third Tab: Primary Protocol Settings

This is to set the IrDA protocols when ACT-IR100UD is in Primary Mode as per application.



- **[Save Configuration Note]:** If you change any parameter, be sure to click “**Send**” button on the tab you have changed first. Then click “**Save Config into Flash**” so that all the change can be saved successfully as above figure.

9.5 Factory Default Settings

ACT-IR100UD is configured for the following factory default settings.

Configuration Parameter	Default Setting Value	Customization Option
Host baud rate	115.2 Kbps	Can be changed through config setting
Data format	8N1	
Device role mode	Primary/Secondary	Can be changed through config setting
Primary protocol	IrCOMM 9 wire	Can be changed through config setting
Ignore DSR/CTS	No (Active)	Can be changed through config setting
Discovery time	3 seconds	Can be changed through config setting
Discovery slots	6	Can be changed through config setting

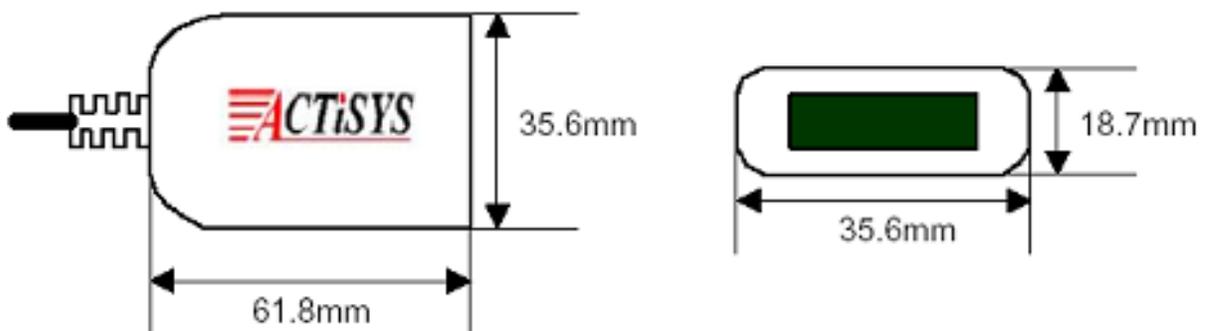
10. LED BEHAVIOR

Activities	LED Behavior	Remark
Power Turned On	LED blinks rapidly one time & then off	
Set Dongle to Primary mode & DSR activated	LED blinks every 3 seconds	Discovering any other IrDA device.
Set Dongle to Secondary mode & DSR activated	LED stays off	It is in stand by status.
Dongle is connected to another IrDA device	LED blinks rapidly.	The blinking speed is based on how fast both devices send and reply frames to each other.

11. CHARACTERISTICS AND SPECIFICATION

Parameter	MIN.	Typical	MAX.	Units
DC supply voltage		5.0	5.2	V
USB signal threshold level	4.8	5V	5.5	V
DC current (Ready mode)	40	42.5	44	mA
DC current (Active Receive mode)	44	44.8	46	mA
DC current (Active Transmit mode)	55	59.5	62	mA
Infrared Transmitting range	1	158	200	cm
Operating temperature range, TA	0		60	°C

12. ACT-IR100UD DONGLE DIMENSIONS



Cable Length: 120 cm.

13. 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.

FOR YOU RECORDS

For your assistance in reporting this product in case of loss or theft, please record below the model number and serial, which are located on the bottom of the case. Please retain this information.

Model Number:	Serial Number:	Date of Purchase:
----------------------	-----------------------	--------------------------



14. 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 advertisement features a central red background with the ACTiSYS logo and tagline. Below the logo is a list of three bullet points describing their products. Underneath the list, the text '115.2K, 4M and 16M bps' is displayed. The bottom section of the advertisement is divided into three panels showing different IrDA products: IR100M/1000M (a computer adapter), IR2000L (a handheld device), and IR220L/L+ (another computer adapter). Surrounding these panels are various images of devices that can use IrDA technology, including a printer, a PDA, a mobile phone, a camera, and a laptop.

ACTiSYS Corporation
921 Corporate Way
Fremont, CA 94539, USA
TEL:+1-510-490-8024, FAX:+1-510-623-7268
E-Mail: irda-info@actisys.com
Web: <http://www.actisys.com>