

**Volume**

**2**

## RECON RUGGED HANDHELD USB Host Bundle



# USB HOST BUNDLE USER GUIDE

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## Introductory Information

### *Introduction*

**I**ntroduction: SolarExpress PDA II is a CompactFlash USB Host card that allows Recons to connect to USB peripheral devices such as printers, keyboards, USB flash drives, pocket drives and USB Hubs.

Features Include:

- ✓ CompactFlash form factor fits devices with CF Type II card slots
- ✓ Compatible with Recons (Windows Mobile 2003, Windows Mobile (2003SE), Windows Mobile 5.0 and Windows Mobile 6.0) based handhelds.
- ✓ USB Mini-A connector on CompactFlash USB Host card
- ✓ USB Host Port Power up to 5v@200mA max.
- ✓ Optional 19 inch Y-USB Host cable to provide 5v@500mA
- ✓ USB peripheral connection monitor software called SEPDA II Monitor
- ✓ USB keyboard driver software integration into Recons applications
- ✓ 18 inch Mini-A to Standard-A Female Host cable
- ✓ USB Mouse Pointer driver , Windows Mobile 5.0+

## *Scope*

**S**cope: This User Guide Contains:

- SolarExpress PDA II default installation procedures for Recon
- “How to” instructions for working with USB devices

## *Preparation*

**P**reparation: Before beginning the installation, verify that the USB host bundle package contains:

- SolarExpress PDA II card
- 18-inch Mini-A to Standard Type-A USB Host cable
- SolarExpress PDA II Software CDROM
- Recon USB Host endcap

## *Supported USB Devices*

**S**upported USB Devices: SolarExpress PDA II has been qualified by to support the following USB devices:

- SanDisk’s USB Flash Drives
- HP’s Mobile Deskjet printers

- Belkin's USB Hub P/N# F5U234
- Seagate's Pocket Drives with Y-USB Host cable
- Logitech's Media Keyboard Elite, Behavior Tech Computer's Ultra-slim 6100

*Note: Y-USB Host cable was tested using APC (American Power Conversion), Mobile Power Pack P/N# UPB10*

Refer to the documentation on the enclosed CDROM for installation and usage instructions.





Refer to <http://www.lightconecorp.net/blog> for driver and updated list of supported USB devices

[http://www.lightconecorp.com/Product\\_Registration.html](http://www.lightconecorp.com/Product_Registration.html) for bundle registration

## Card Installation Procedure

### *Installation Steps*

#### IMPORTANT NOTES

-  Updated Driver
-  CF USB Host Driver
-  USB Class Drivers
-  SEPDA II Monitor



#### Updated Driver

Download current card driver (Version 1.1.0.7) from the SolarExpress Blog to your Windows Desktop.



#### CF USB Host Driver

Installation of the CF USB Host driver requires a connection through Microsoft ActiveSync between the desktop or laptop and the Pocket PC. **Note:** Driver must be installed in **main memory** and not on CF or SD memory card.



#### USB Class Drivers

The Keyboard Class driver and the other USB Class drivers are loaded at the time of install of CF USB Host driver. These Class drivers include support for USB Hubs, Mass storage devices and Printers. Once driver is installed all that is one can immediately connect to various USB peripheral devices.



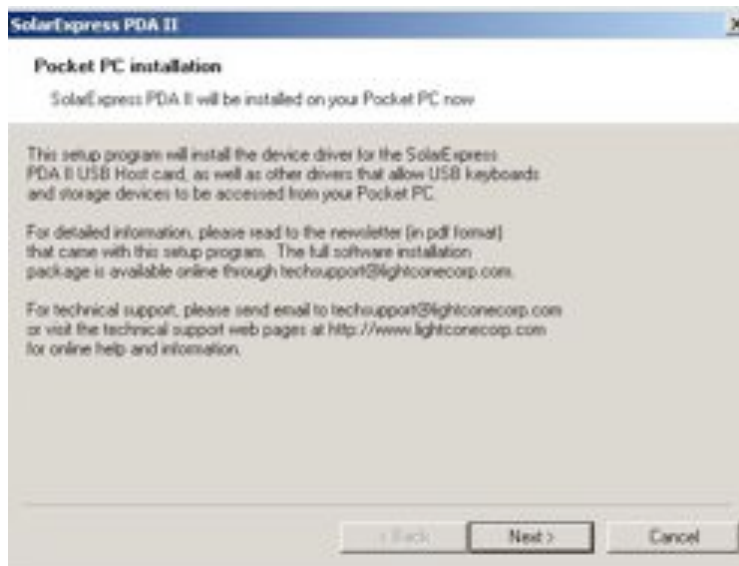
### SEPDA II Monitor

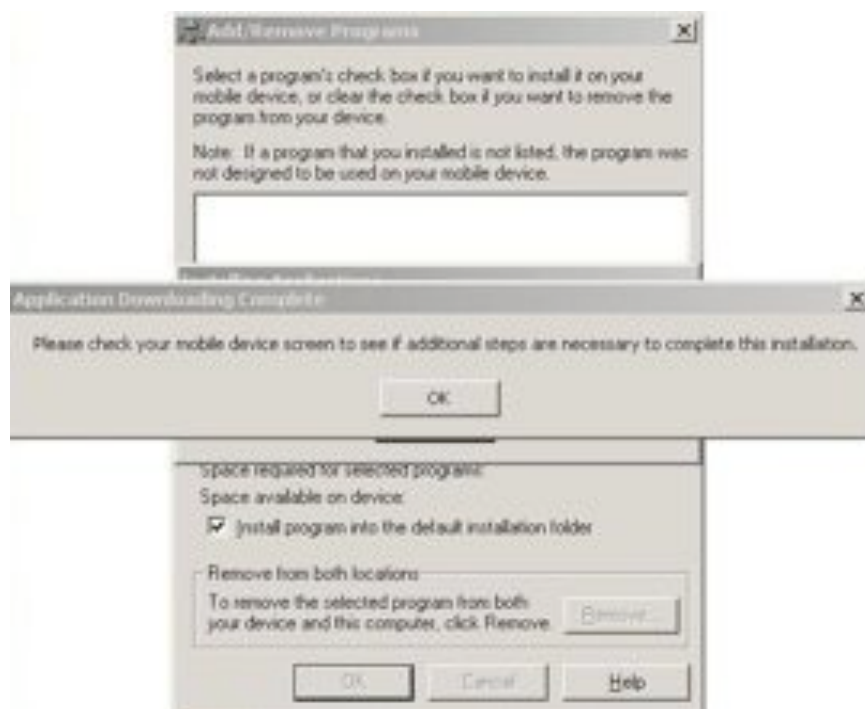
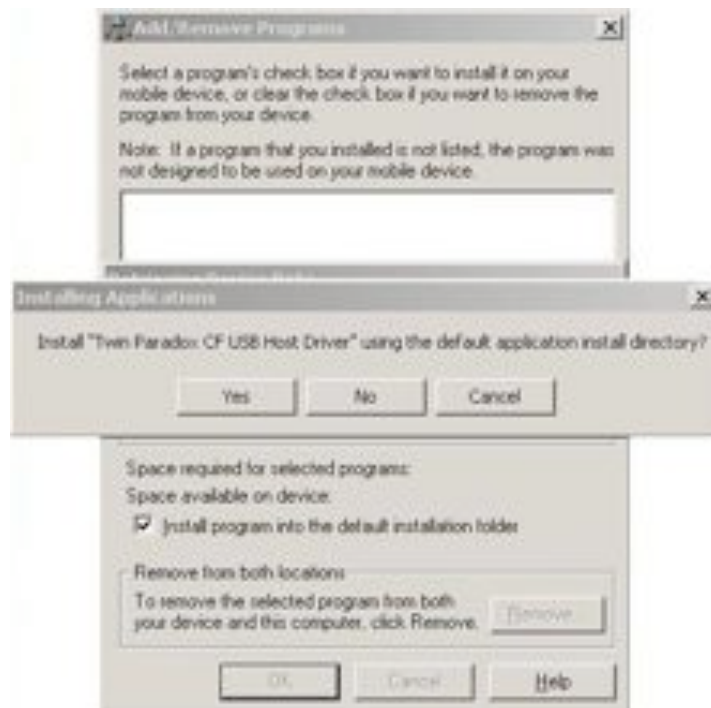
SolarExpress PDA II Monitor program is a USB peripheral connection viewer. It is loaded during CF USB Host driver install. It is normal for the USB Hub not to be displayed, when connected to the SolarExpress PDA II card.

One can verify USB Hub is working by connecting a USB peripheral device to the USB Hub. This device will display in the SEPDA II Monitor program.

**I**nstallation steps for installing the SolarExpress PDA II card driver:

1. Establish an ActiveSync connection between the desktop or laptop to the Recon/PDA with a serial or USB cable.
2. Double click the current setup file on Desktop (Version 1.1.0.7) that was downloaded from SolarExpress PDA II Blog.
3. Follow the instructions displayed by the installer.





4. Tap SEPDA II Monitor program Icon from Programs, to open SEPDA II Monitor Program.



5. Insert SolarExpress PDA II in the Recon/PDA Type II CF Slot.



6. SEPDA II Monitor will take a few seconds to display under *Device* heading “SEPDA II Card”. The *Activity* heading will read “Session Activated”. SolarExpress PDA II card is now ready for a USB peripheral device connection.



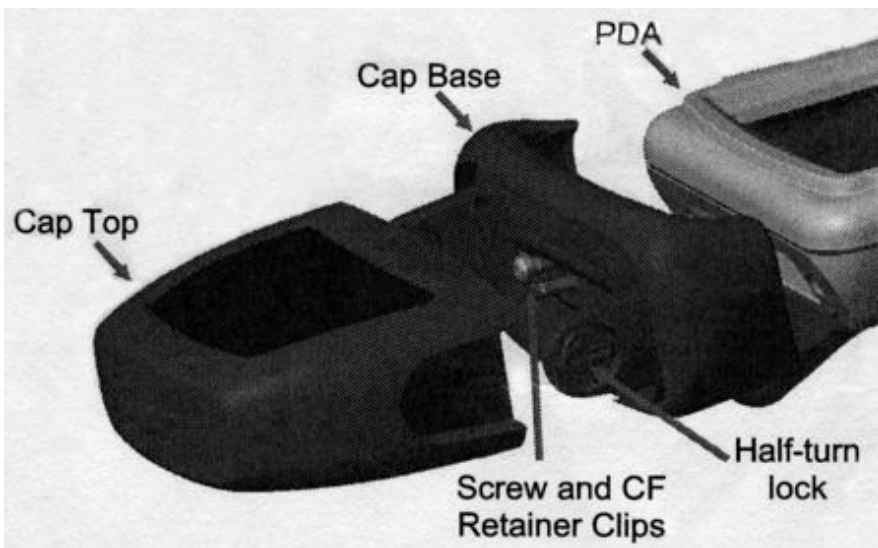
**Note:** Version 1.1.0.7 of the driver must be removed manually from the handheld.



## USB Host Endcap

### *Assembly*

**A**ssembly of Light Cone's USB Host endcap is similar to other Recon/PDA endcaps such as the *Extended CF-Cap*, *Midsize CF-Cap* and *Optical CF-Cap*. These accessory cap assemblies has two sections: one a cap base and the other a cap top. Light Cone supplies the USB Host endcap (cap top) with Trimble providing the cap base.



The cap base provides a platform for the USB Host endcap and also connects to the Recon/PDA. The cap base includes latches for USB Host endcap as well as a watertight gasket. This diagram shows how an accessory cap top attaches to the Recon/PDA.

## *CF Slot Retainer Clips*

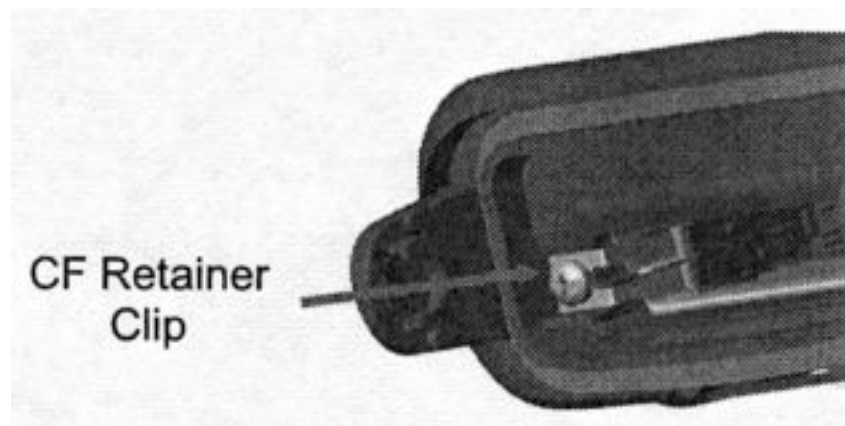
**CF** slot retainer clips prevent CompactFlash I/O cards from moving in severe vibration or drop. The clips also make removal of CF I/O cards from their slots more difficult.



To remove a CF I/O card when the CF retainers are in place, you must loosen the screws and remove the CF retainer clips. If the Recon/PDA is being used in an environment where drop and vibration is more likely to occur, you should install the retainer clips. Also use the retainer clips if the CF I/O card is not frequently removed from the Recon/PDA.

If the CF I/O card will be removed and inserted frequently, do not install the Recon/PDA retainer clips.

The image on the right shows one of the two CF I/O card retainers clips in place.

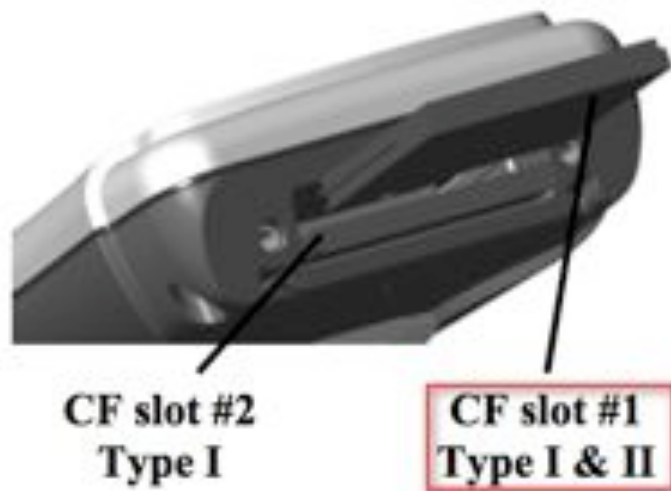


## *Endcap Attachment Instructions*

**E**ndcap attachment instructions are below:

**Note:** Steps 1 and 2 does not apply if a cap base is currently connected to Recon/PDA.

1. Use a screwdriver to remove the standard cap base from the Recon/PDA.
2. Screw the extended cap base to the Recon/PDA taking care to ensure that the watertight gasket lies between the base and the Recon/PDA. Also make sure the watertight gasket is properly aligned without any kinks.
3. Turn the half-turn arrow locks on the sides of the extended cap base to unlock position (pointing away from the Recon/PDA). You can use the stylus, your fingers or a screwdriver to do this.
4. Insert the SolarExpress PDA II card in the Recon/PDA Type-II CF Slot. **(If you have not previously installed the SolarExpress PDA card driver, do so before inserting the card).**



5. Insert the USB Host endcap into the SolarExpress PDA II card **mini-USB host connector**. (use the Recon/PDA logo to orient the endcap right side up). You will need to align/push the USB Host endcap to extended cap base and latches.



6. Turn the arrow locks on latches 180 degrees to lock the USB Host endcap in place.

## USB Peripheral Connection Viewer

### *SolarExpress PDA II Monitor*

**S**olarExpress PDA II monitor is a USB peripheral device connection viewer that displays the present and past USB peripheral devices connected to the SolarExpress PDA II card. The SolarExpress PDA II monitor also allows one to refresh to the current state of USB peripheral connections. Upon reactivating another session, the display can be cleared of all past USB connections. The images below will further illustrate these features.



No USB peripheral device is connected to the SolarExpress PDA II card.



A USB flash drive is now connected to the SolarExpress PDA II card.



The previous USB device connected was a USB flash drive. The current USB peripheral device available to the user is a USB keyboard. The above example also indicates that the SolarExpress PDA II card was not removed from the Pocket PC CF slot, prior to connecting the USB Keyboard.

## Refresh

**R**efresh will display the current activated session only.



Device	Activity
SEPDA II Card	Session Activated
\Hard Disk	USB storage available
\Hard Disk	USB storage not available
KBD1:	USB keyboard available
KBD1:	USB keyboard not available
SEPDA II Card	Session Deactivated
SEPDA II Card	Session Activated
\Hard Disk	USB storage available
KBD1:	USB keyboard available

The above SEPDA II Monitor image is prior to a **Refresh**. The correct interpretation of the current state of SEPDA II Monitor is the following:

1. Two sessions were activated which means that the SolarExpress PDA II card was removed from and reinserted into the Pocket PC CF slot.
2. During the first session a USB Flash drive was connected and removed from SolarExpress PDA II card.
3. Also, during the first session, a USB keyboard was connected and removed from SolarExpress PDA II card.
4. The first session was terminated by the removal of SolarExpress PDA II card from Pocket PC CF slot.

This is indicated above by “SEPDA II Card Session Deactivated”.

5. SolarExpress PDA II card was reinserted in Pocket PC CF slot. This began the second session shown by “SEPDA II Card Session Activated”.
6. In this session, both USB Flash drive and keyboard are available to user at the same time. The USB devices are now connected to a USB Hub.

SEPDA II Monitor program will not display attached USB hubs which was used in image below.



To Refresh current Session display only. Select Options and then select Refresh option.



After Refresh the only Session displayed is current. SEPDA II Monitor now displays USB Flash drive and Keyboard connected to USB Hub only.

## *Clear Monitor Display*

**C**lear monitor display selection should always be followed by a Refresh.



## USB Keyboard Setup

*SolarExpress PDA II Monitor Keyboard*

**S**olarExpress PDA II monitor keyboard connection image is shown below:



**Note:** Software Input Panel in settings is not require to select the USB keyboard. The USB keyboard is available to all applications when shown in card monitor program.



**Note:** Software Input Panel in Settings window above is not required to select the USB keyboard. The USB keyboard is no longer shown in the Software Input Panel (SIP). The USB keyboard is now automatically available to all applications when shown in the SolarExpress PDA II card monitor program.

## Printing to USB Printers

*SolarExpress PDA II Monitor Printer*

**S**olarExpress PDA II monitor printer connection image is shown below:



## *Third Party Print Utilities*

**T**hird party utilities are required for printing to a USB Printer. PrintPocketCE from Field Software [www.fieldsoftware.com](http://www.fieldsoftware.com) is such a utility. Please note printing of Pocket Word (.doc) and Pocket Excel (.xls) files in PrintPocketCE is not supported under Windows Mobile 5.0 and 6.0. However, one can print RTF, plain text (.txt), and email files.

PrintPocketCE does print in color and support Pocket Word (.psw) and Pocket Excel (.pxl) printing under Windows Mobile 2003 and Windows Mobile 2003SE.

Field Software's PrintPocketCE is straight forward in printing from Windows Mobile 2003 or Windows Mobile 2003SE, Windows Mobile 5.0 and Windows Mobile 6.0 Pocket PCs.



## USB Mouse Pointer

### *USBInput*

**U**SBInput driver software is required to display a mouse pointer on a Window Mobile device.

Microsoft did not enable the pointer for a USB mouse in its native Window Mobile operating system.

USBInput provide this function. You can install USBInput on any Recon/PDA with Windows Mobile 5.0 and above.

The procedure for installing the USBInput driver is below:

1. Copy USBInput to driver desktop from CD
2. Connect Recon/PDA to laptop or desktop via ActiveSync
3. Click or double click USBInput icon to invoke the Teksoft USBInput installer.

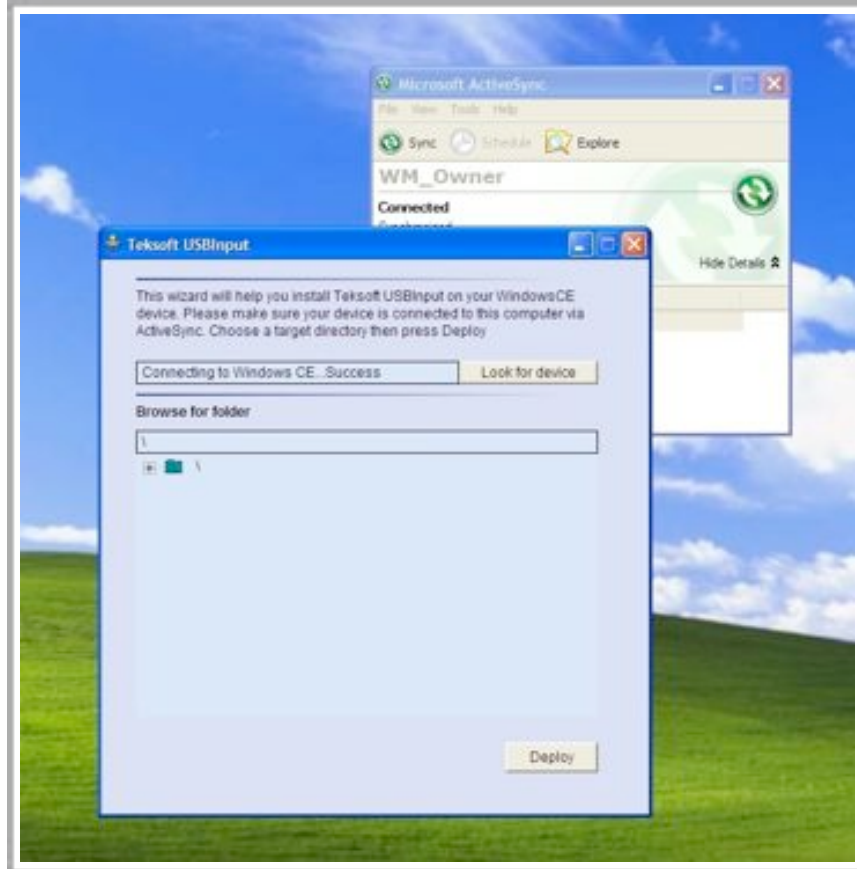
The Teksoft installer screen are shown on the next following page as image A & B.

A.) Displays “**Connecting to Windows CE..Success**” which to say it has found your Recon/PDA thru ActiveSync.

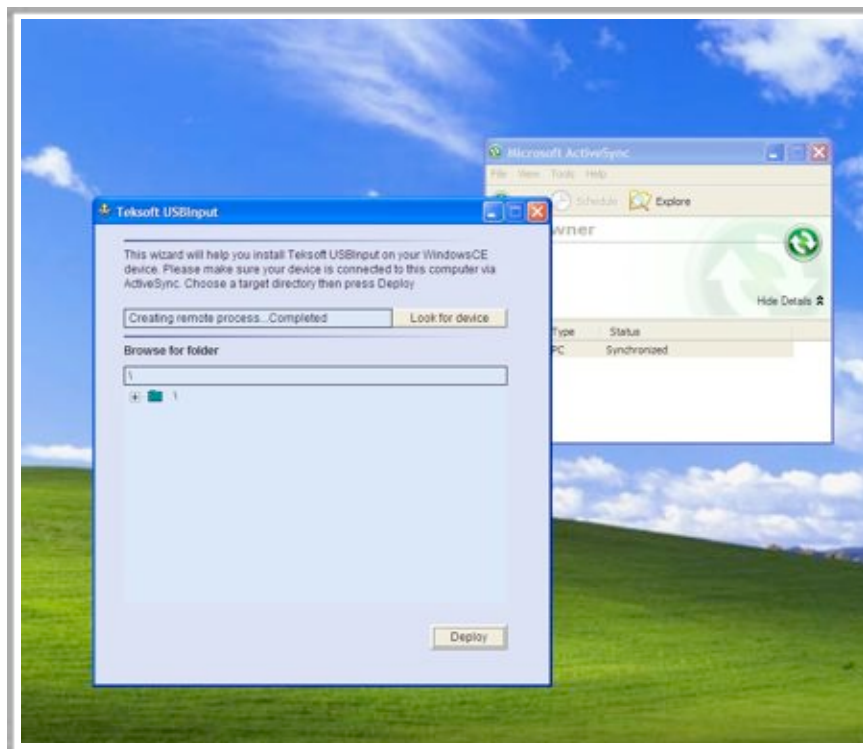
B.) Displays “**Creating remote process...Completed**”, Installer is ready to deploy/copy installation file to the Recon/PDA. Click deploy to initiate copy of installation file to Recon/PDA.

**Note:** On second installer screen install to default setting of installer.

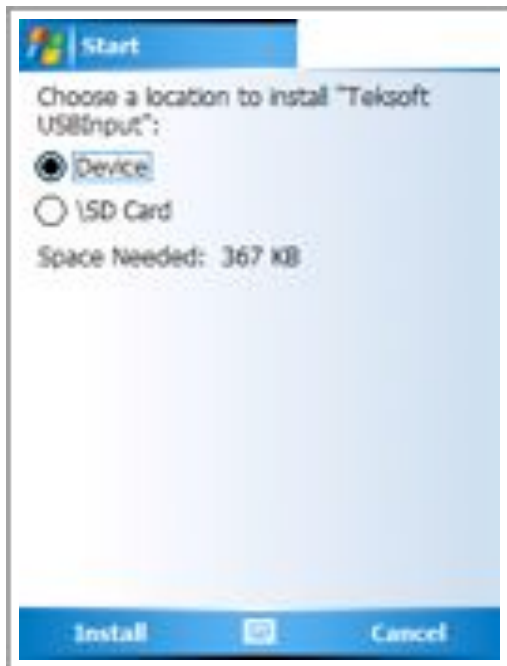
A.)



B.)



4. Follow the instructions to install the USBInput driver on your Recon/PDA





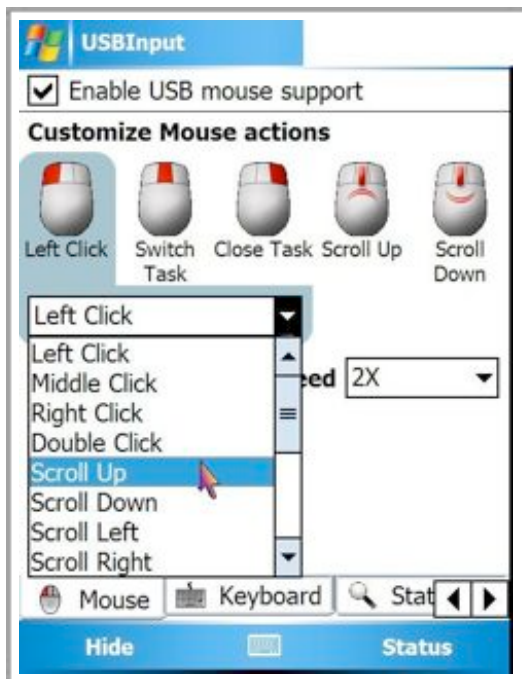
**Configuration-** After a successful installation of the USBInput driver, you can now connect a USB mouse to your Recon/PDA thru the SolarExpress PDA II card. Once a USB Mouse is connected to the Recon/PDA USB port, you can check the Status TAB in the USBInput *settings panel*.

## Settings Panels:



To open the settings panel, go to Start->Settings->System TAB, and tap the icon named "USB Input Driver"

## Mouse Tab:



The mouse tab allows you to configure the functionality behind the USB Mouse. Events like left click, right click and scroll up/down are totally configurable. The cursor icon and the cursor speed can also be configured here.

## Status Tab:



Displays the general status of Mouse driver status. You can configure the driver to start when Windows Mobile starts (autostart) and you can enable / disable the Tray icon from Recon/PDA home menu. The tray icon allows quick access to the Settings panel.

## Help Tab:



Access the USBInput manual via the Help tab as shown above.

## Register Tab:



Register your USBInput copy. This page is shown only in an unregistered version of a USBInput driver.

## Power Management

### *Y-Cable Power Option*

**Y**-cable power option allows a user to connect to higher power USB devices such as Pocket hard drives. The USB host current from SolarExpress PDA II is restricted to 5V@200mA max. Current above 5v@200mA is provided thru third party mobile packs.

i.e. *CyberPower, Mobile Power Pack P/N# CP-MBC*



L x W x H = 4.25 inches x 2.50 inches x .50 inches, Total weight = .25 lbs Desktop USB Host port can provide additional current as well.

## Troubleshooting

### *Unrecognized SEPDA II Card*

**U**nrecognized SEPDA II card dialog box displayed by Pocket PC. This means the SolarExpress PDA II driver was not loaded or was loaded incorrectly. If this is the case, the driver files require reinstallation. Refer to the SolarExpress PDA II driver installation section of this document.

If problem persists, contact [techsupport@lightconecorp.com](mailto:techsupport@lightconecorp.com).



## *Unrecognized USB Peripherals*

**U**nrecognized USB peripherals are a result of not having the correct driver installed on the Pocket PC. Contact USB peripheral manufacturer. and [techsupport@lightconecorp.com](mailto:techsupport@lightconecorp.com).

- Windows Mobile 2003 is based on Windows CE 4.2, Windows Mobile 5.0 is based on Windows CE 5.0 and Windows mobile 6.0 is using Windows CE 5.2.
- Windows Mobile does not support NTFS (New Technology File Systems) formatted drives. Windows Mobile only supports FAT formatted mass storage devices.
- Not supported are mass storage devices that utilizes custom autorun startup programs such as Seagate-FreeAgent Go, WD-Passports drives and Sandisk USB flash drives with U3 installed. Windows Mobile expects to see a FAT formatted drive only.
- Web cams are not supported.
- USB to Serial dongles are supported using FTDI Chip and Thesycon virtual com port drivers.
- Isochronous devices are not supported at this time (i.e. USB speakers)

The SolarExpress PDA II Blog provides a more detail list of compatible USB devices.

**Section**  
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## Contact Information

### *Customer Support*

Light Cone Corp.  
7700 Irvine Center Drive • Suite 800  
Irvine, CA 92618  
Phone: 949.753.2810  
Fax: 949.753.2811  
[www.lightconecorp.com](http://www.lightconecorp.com)  
[sales@lightconecorp.com](mailto:sales@lightconecorp.com)  
[techsupport@lightconecorp.com](mailto:techsupport@lightconecorp.com)

**C**ustomer support responds within the shortest time possible. When contacting Light Cone Corp.

customer support, please provide the following information:

- ✓ Serial number of unit, located on the front of clamshell
- ✓ Product Name
- ✓ Version number of software driver
- ✓ Windows Mobile O.S.

**Section**  
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## Card Technical Specifications

### *CompactFlash USB 1.1 Host Card Technical Specifications*

Product Name	SolarExpress PDA II
Product Number	TPX11676
Bus Interface	CF+ Specification Rev.1.4 compliant
USB Host Port interface	USB 1.1 compliant
Mini-USB Host Connector	Min-A USB Host connector on the card.
USB Host Port Connector	Standard A female (downstream).
USB Host Cable	18.7 inch Mini-A to Standard Type-A USB Host connector cable
USB Host Power availability	200mA (5V) maximum from Pocket PC
Y-USB Power Cable	500mA (5V) from 18.7 inch Y-Power USB Host cable
Card Dimensions	TYPE II CF (L=2.186 x W=1.68 x H=0.305@housing) in inches
OS Support	Windows Mobile 2003, Windows Mobile 2003SE, Windows Mobile 2005, Windows Mobile 6.0
Certification	FCC Part 15, Class B.
Warranty	1 year
Package includes	<ul style="list-style-type: none"> <li>• SolarExpress PDA II Card</li> <li>• USB Host Cable</li> <li>• CDROM with CF USB Host Adapter driver for Pocket PC</li> <li>• User Guide</li> <li>• USBInput</li> </ul>

Section  
12

## Legal Information

### *Regulatory Compliance*

**R**egulatory compliance: Twin Paradox products are designed to be compliant with the rules in the locations into which they are sold and will be labeled as required. Any changes or modifications to Twin Paradox products not expressly approved by Twin Paradox could void the user authority to use the product.

**Radio Frequency Interference Requirements:** This device has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the Federal Communications Commissions (FCC) Rules and Regulations. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ✓ Reorient or relocate the receiving antenna.
- ✓ Increase the separation between the equipment and receiver.
- ✓ Connect the equipment into an outlet on a circuit different from that which the receiver is connected.

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USBInput is a trademark of Teksoft.

## *Limited Warranty*

**L**imited Warranty: Light Cone Corp. warrants this product against defects in materials and workmanship for one year. If defect is discovered, Light Cone will repair or replace the product at no charge provided it is returned during the warranty period, to the authorized Light Cone distributor from whom you purchased the product. Proof of purchase may be required.

This warranty does not apply if the product has been damaged by accident, abuse, misuse, or misapplication, or if the product has been modified without the written permission of Light Cone.

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