

**[www.SWITCHBACKPC.COM](http://www.SWITCHBACKPC.COM)**

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## 1. Introduction

### A. Disclaimer

#### **WARNING:**

**PLEASE READ THIS MANUAL PRIOR TO USING THE SWITCHBACK PC.**

*The SwitchBack PC this manual accompanies is an engineering model. It is intended to be used in an engineering environment only. Black Diamond Advanced Technology is not responsible for any damage, injury or death resulting from use of the SwitchBack PC in a non-engineering environment. See included errata for more information.*

*Black Diamond Advanced Technology reserves the right to change SwitchBack PC specifications, Backpack module specifications and manuals without notice. Black Diamond Advanced Technology assumes no liability for damage, injury or death sustained directly or indirectly from errors, omissions, discrepancies or between the SwitchBack PC, Backpack modules and this manual.*

*Like any computer, software or hardware inaccuracies may occur. Black Diamond Advanced Technology is not responsible for damage, inconvenience, financial loss, injury or death resulting from hardware or software inaccuracies. Please use caution when using SwitchBack PC in dangerous or life threatening situations.*

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### B. Federal Communications Commission Statement

This equipment will be tested and is expected to comply with the limits of a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## 2. Getting Started

### A. In the box

SwitchBack PC



Power cable and AC/DC adapter



Lithium polymer battery

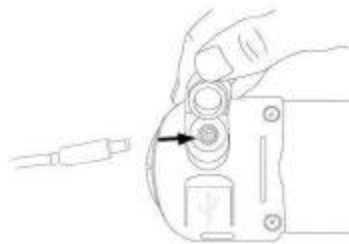


Hard Drive (pre-installed)

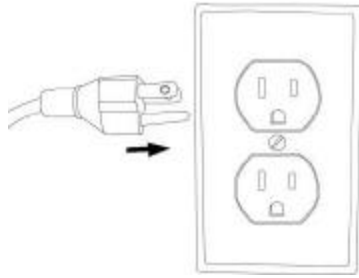


### B. Connecting to a power source

- I. Connect power supply to SwitchBack PC by inserting the smaller connector of the AC adapter into the power port under the rubber cover on the bottom marked **POWER**.

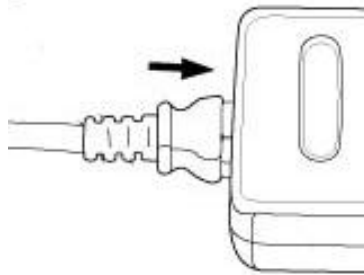


- II. Plug one end of power cable into a wall outlet.



### III. Plug the other end of the power cable into the AC adapter

Power cable => AC adapter



### C. Turning on

*Attach any Backpack Modules you intend to use prior to turning on the SwitchBack. Follow the instructions for application and use of Backpack modules included with the Backpack modules.*

Press and hold the power button for one full second (located on the keyboard on the front of the SwitchBack PC).

**DO NOT APPLY OR REMOVE BACKPACK MODULES WITH THE SWITCHBACK PC RUNNING**

### D. Restart

Use normal Windows XP Professional procedure to restart the computer.

### E. Shutting Off Safely

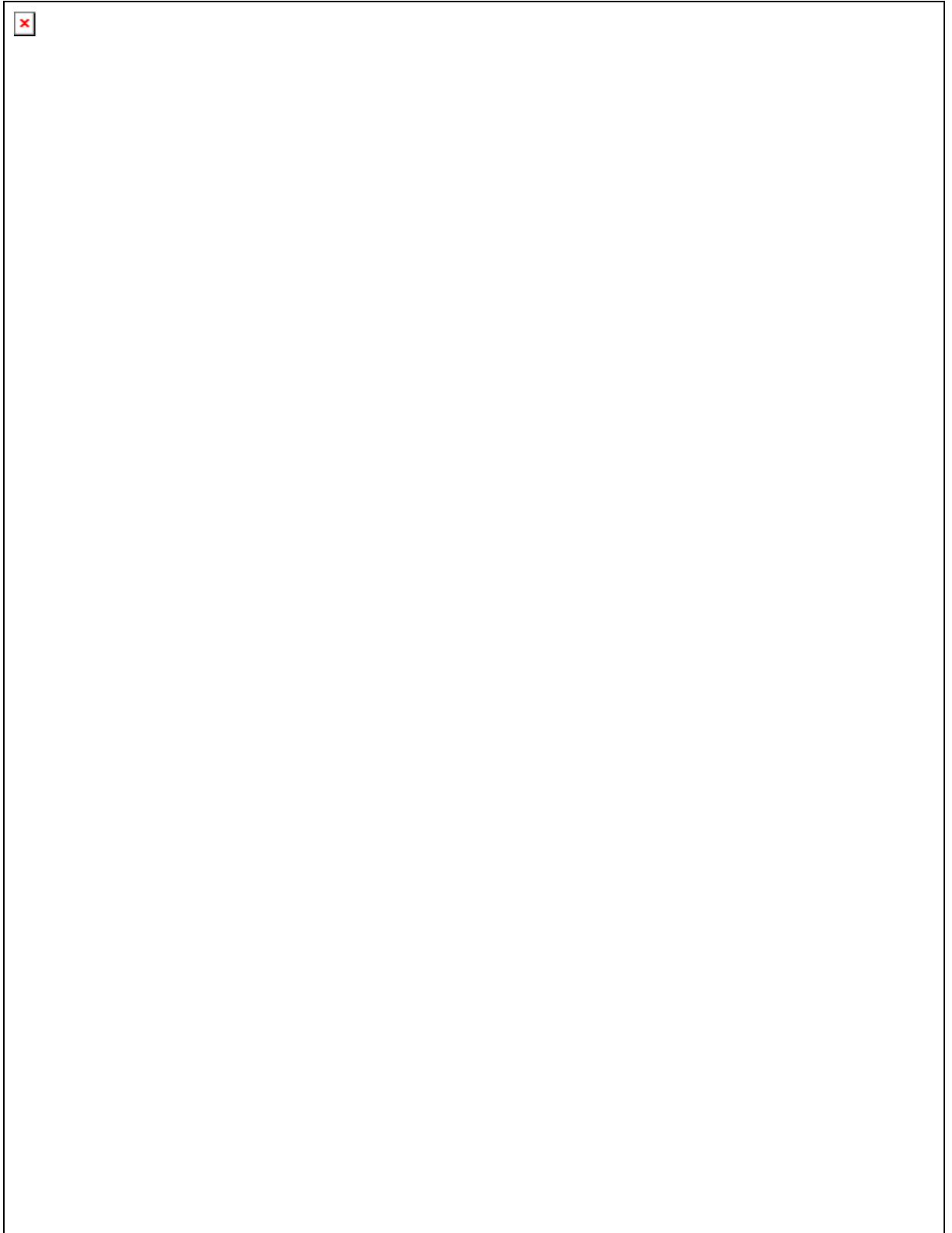
***Note: Removing the battery will not immediately turn off the SwitchBack PC. The internal back-up battery will continue to power the unit for up to two minutes.***

Press the power button or select the [Start] menu to bring up Windows XP shut down options, then proceed with normal Windows procedure to turn off the computer. Removing the battery will not immediately turn off the computer.

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## 3. Overview

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## A. LEDs

### I. LED 1 (I on Diagram)

Red = Hard drive activity

Green Flashing = Primary or backup battery charging

### II. LED 2 (G on Diagram)

Both Off = the unit is running off a charged battery

Green Solid = the unit is running off DC power

Red Solid = the primary battery is low

Red Flash = the primary battery is extremely low

Both On = the primary battery is low, and the unit is running off the secondary battery.

Both Flashing = both batteries are extremely low; the unit should be connected to external power ASAP.

### III. LED 3 (H on Diagram)

Red = Function LED

Blue Solid = Num Lock or Caps Lock

Slow Blue Flash = Caps Lock and Num Lock

**Caution:** Do not turn computer off while LED 1(hard drive indicator) is on or flashing. Secure computer when saving important data.

## B. Keyboard



- I. SwitchBack PC's keyboard features multiple letters, numbers or punctuation that share a key. Please refer to the guides for information on using the SwitchBack's condensed QWERTY keyboard.

First character on a key	Press the desired key once
First character on a key twice in text such as "ee"	Press the desired key once, pause, and press again
Second character on a single key	Press the desired key twice
Function Keys (BLUE KEYS)	Press [FN]. Led 3 will turn red. Press the desired key
Capital Letters	Hold [SHIFT] while pressing desired key
Num Lock	Press [FN] then the right arrow. LED 3 will light blue
Caps Lock	Press shift twice - LED 3 will light blue When Num Lock and Caps Lock are activated, LED 3 will blink

## II. Grid of function combinations

KEYS STRUCK	RESULTING TEXT
[Q]	q
[Q][Q]	w
[SHIFT][Q]	Q
[SHIFT][Q][Q]	W
[E]	e
[E][E]	r
[SHIFT][E]	E
[SHIFT][E][E]	R
[T]	t
[SHIFT][T]	T
[Y]	y
[SHIFT][Y]	Y
[U]	u
[U][U]	i
[SHIFT][U]	U
[SHIFT][U][U]	I
[O]	o
[O][O]	p
[SHIFT][O]	O
[SHIFT][O][O]	P
[A]	a
[A][A]	s
[SHIFT][A]	A
[SHIFT][A][A]	S
[D]	d
[D][D]	f
[SHIFT][D]	D
[SHIFT][D][D]	F
[G]	g
[SHIFT][G]	G
[H]	h
[SHIFT][H]	H
[J]	j
[J][J]	k
[SHIFT][J]	J
[SHIFT][J][J]	K
[L]	l
[SHIFT][L]	L
[Z]	z
[Z][Z]	x
[FN][Z]	sym
[SHIFT][Z]	Z
[SHIFT][Z][Z]	X
[C]	c
[C][C]	v
[SHIFT][C]	C
[SHIFT][C][C]	V
[B]	b
[SHIFT][B]	B
[N]	n
[N][N]	m
[SHIFT][N]	N
[SHIFT][N][N]	M

KEY STRUCK	RESULTING TEXT
NUMBERS	
[FN][N]	1
[FN][TAB]	2
[FN][DEL]	3
[FN][H]	4
[FN][J]	5
[FN][L]	6
[FN][Y]	7
[FN][U]	8
[FN][O]	9
[FN][SPACE]	0
PUNCTUATION	
[FN][Q]	!
[FN][E]	.
[FN][T]	'
[FN][A]	?
[FN][D]	,
[FN][G]	@
[FN][C]	*
[FN][B]	#
COMMAND KEYS	
[ESC]	Escape
[CTRL]	Control
[SHIFT]	Shift
[ALT]	Alt
[TAB]	
[DEL]	Delete
[FN]	Function

### C. Touch Screen

- I. Use- The 5.6" Touch screen can be used with either the stylus (included) or your finger. Apply gentle pressure to guide the cursor. Tap to highlight, tap and hold to drag, double tap to select.
- II. Settings- To calibrate the touch screen:  
Start> [All Programs]> [Hampshire TSHARC Control Panel]> Calibration Tab and follow the on screen prompts.

### D. Pointing Device

- I. Use- Apply gentle steady pressure with thumb or finger to direct the cursor in the desired direction. Increased pressure will provide faster response; less pressure, a slower response. Use the right and left mouse buttons to the left of the screen as you would normal mouse buttons.
- II. Settings- Adjust the settings of the pointing device by using the Microsoft Window's mouse settings, located in the Control Panel window.

### E. Connectivity

#### I. WiFi

To connect the SwitchBack PC to a secured wireless network, select the Ralink wireless utility icon on the desktop. Under the Site Survey tab select a wireless network from the list and press the [CONNECT] . Enter the network key if necessary.

#### II. USB

***Most USB devices can be connected to the SwitchBack PC's USB 2.0 port.***

##### **To connect a USB device**

- a. Lift the rubber cover with the USB symbol on it ( Labeled S on the diagram) and insert the USB connector into the port.
- b. Windows should recognize the new device, though your device may require additional drivers be installed in order to function. Consult user manuals that accompanied the USB device.

##### **To Disconnect a USB device**

- a. Select the USB device in the lower right hand corner of the Windows toolbar.
- b. Select device to disconnect and click [Disconnect]. Follow the prompts to finish disconnection.
- c. If Windows alerts you that the device can not be removed at the time, close any application that is using the USB device.

### III. Bluetooth

- a. From the Start Menu select [Control Panel] and locate the Bluetooth Device Wizard. Make sure the Bluetooth connectivity is enabled in the SwitchBack PC.
- b. Choose to find and add a specific Bluetooth device.
- c. Turn on the device you are trying to connect to or place it in pairing mode.
- d. As the SwitchBack PC discovers the device it will notify you what it has found. Choose your intended device from the list you wish to establish a trusted connection with, and initiate pairing process to establish a connection.
- e. A PIN code will be generated by the SwitchBack PC, you will then be prompted to enter it. Once completed, click [FINISH]

### F. Screen Adjustments

The SwitchBack PC's screen has an auto dimming feature to help preserve battery life. Brightness and contrast adjustments are not available at this time. If the screen appears to be dim, make sure the light sensor on the front of the unit (J on the diagram) has not been covered. Display properties, such as screen savers and desktops appearance can be adjusted by selecting [Start]> [Control Panel] > [Display]

### G. Accessories

#### I. Included Accessories

- a. AC /DC Adapter

### 4. Battery

***The SwitchBack PC utilizes a Lithium Polymer Battery. Please read the Safety and Warning Section prior to use.***

***If you notice a sudden drop in power, discontinue use of the battery and allow to cool completely before charging. Lithium Polymer batteries do not have a memory. It is not necessary to fully discharge them prior to charging and to do so may be detrimental to your battery life.***

#### A. Indicators

***Note: The Battery indicator is intended to be an aid in determining the amount of life remaining in the battery. Power usage will determine actual life, which may be less than specified by the battery life indicator. Black Diamond Advanced Technology is not responsible for any losses due to loss of power.***

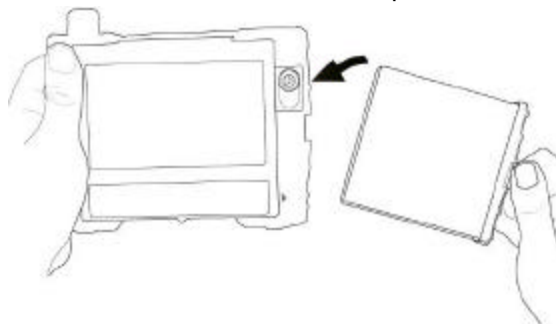


To check the current charge of a battery, press the white button labeled PUSH on the end of the battery. The lights will illuminate green progressively from left to right to indicate the amount of power left in the battery.

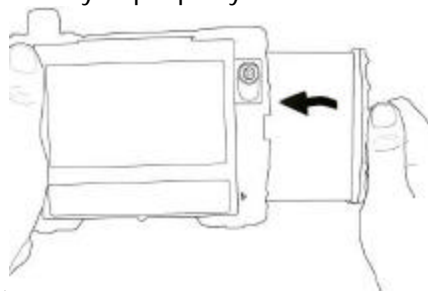
# of lit lights	Description
4 lit lights	The battery is full charged
3 lit lights	3/4 of the battery life remains
2 lit lights	1/2 of the battery life remains
1 lit light	1/4 of the battery life remains, recharge soon.

## B. Installing

- I. With the SwitchBack PC facing you, slide the battery into the right hand side of the unit. The rubberized side with the latch does not get inserted into the computer.

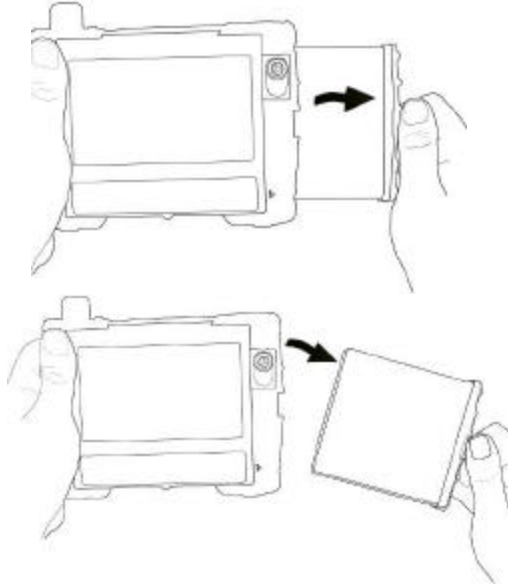


- II. The latch will click into place and the release will lie flat when the battery is properly installed



### C. Removal

1. Unlatch the battery latch on the side of the unit by gently pulling back with your thumb.
2. Gripping the battery latch, gently pull from unit.



### D. Hot-swapping

To hot-swap batteries, simply remove the current battery and replace it with another. You may have up to 3 minutes to swap batteries before the backup battery is no longer able to power the unit. For best operation, have a fully charged replacement battery available and ready to insert prior to removing the old battery.

### E. Power Usage

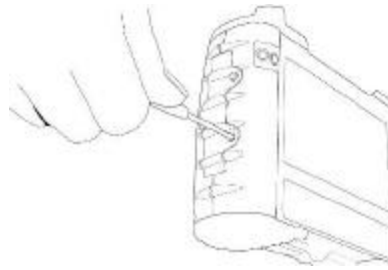
The battery will last approximately 2 to 4 hours depending on usage. Use of WiFi, Bluetooth and applications will have a detrimental effect on battery life. The battery will take 2 hours approximately to charge once external power is applied.

## 5. Hard Drive

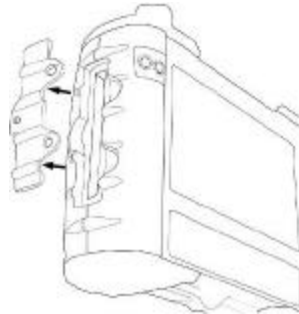
### A. Removal

**Caution: DO NOT REMOVE THE HARD DRIVE WHILE THE SWITCHBACK IS POWERED ON! The hard drive should be removed by authorized personnel only. Please read the additional hard drive warnings in this manual prior to use.**

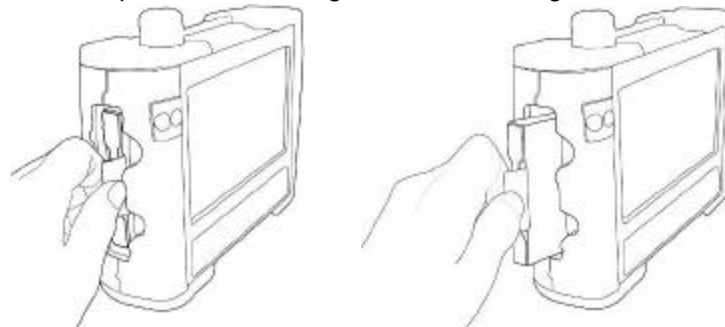
- I. Unscrew the three screws (Labeled N on the Diagram) holding the hard drive cover, found on the left side of the unit. (Labeled M on the diagram).



- II. Gently lift the hard drive cover off the unit.

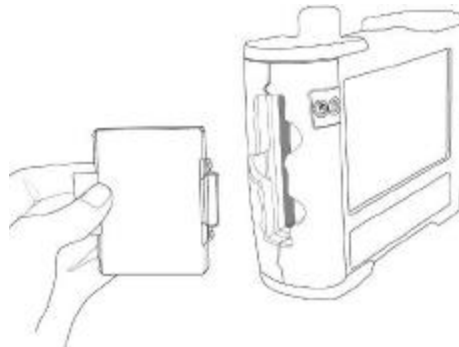


- III. Pull the plastic tab straight out, removing it from the unit.



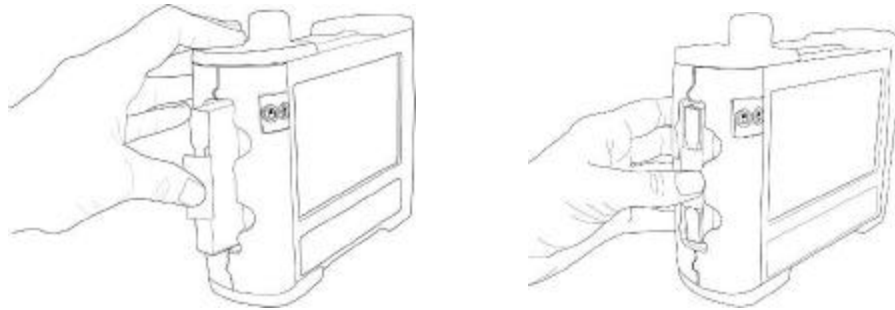
### B. Installation

- I. If necessary, remove the cover as described in section 6.A.1. above.
- II. Insert the hard drive with the connector facing inward.



- III. Gently slide the hard drive all the way into the hard drive slot.





IV. Replace hard drive cover by securely tightening down all three screws.



### 6. Additional Software

The SwitchBack PC is able to run third party software designed for your specific Microsoft OS. Most software can be installed by utilizing a common USB device for installing software (i.e. thumb drive, or USB CD-ROM).

### 7. Care and Maintenance

***SwitchBack was designed to minimize the adverse effects of harsh environments. It is not entirely immune to the adverse effects that may result from exposure to shock, moisture, chemicals, extreme heat or cold, and/or dust. Your warranty does not cover damage due to exposure of said environments. Please use great care when using SwitchBack in these environments.***

- I. To clean your SwitchBack PC- Gently wipe dirt or debris away with a damp cloth.
- II. Clean the SwitchBack PC's touch screen using a soft cloth dampened either with water or glass cleaner. Do not spray cleaners directly on the screen.
- III. Do not attempt to clean the SwitchBack PC in a dishwasher, or using a power washer.
- IV. Do not attempt to remove BackPack Module, hard drive or Hot-swap batteries in adverse conditions.
- V. Use of abrasive cleansers, sharp objects or tools may damage the SwitchBack PC.
- VI. Use of Benzene, Isopropyl Alcohol, thinners, or acids as cleaning agents on the SwitchBack is not advised and may cause damage.

VII. Installation and use of virus protection software is strongly advised.

Read the Limited Use License Agreement and Warranty information. Further use of the SwitchBack indicates your understanding and agreement with these documents.

## 8. Technical Specifications

### SwitchBack PC Base Unit

Operating System	Windows XP Professional
Display	5.6" sunlight viewable 1024x 600 WSVGA Resolution with touch screen capability
Processor	Intel 2.0 GHz Celeron M
Chipset	
Memory	Up to 1 GB of 400MHz DDR2
Graphics	Onboard Intel GMA-900 graphics chipset
Pointing Device	Built in pointing device
Touch Pannel	5.6" sunlight viewable gloved-finger touch screen
Storage	40 GB Removable HD
Interfaces	1x USB 2.0 1x Power Port 1x BackPack module connection
Keyboard	Condensed QWERTY Membrane
Battery	12.6 V 3900mA/hr, hot swappable
Power Supply	DC input
Housing	Magnesium alloy case with overmolded rubber
Dimensions	7.5"x 5.5"x 2"
Weight	3lbs
Stand-alone Power Requirements	30 Watts (Approx.)
Charging Battery Power Requirements	50 Watts (Approx.)
Temperature	-40C to + 85C Non-Operating Temperature -10C to +45C Operating Temperature -20C to +60C Solid State Drive
Enviornment	IP-67
Shock	MIL-STD-810F
Vibration	MIL-STD-810F
Drop Test	4 feet on to concrete

## 9. Troubleshooting

- A. See included errata or contact Black Diamond Advanced Technology by calling (480) 247-8700 or email [bugreport@bdatech.com](mailto:bugreport@bdatech.com)

### 10. Limited Use License Agreement

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## **11. Warnings and Safety**

### **Safety- SwitchBack PC**

***Failure to comply with the following precautions will void your warranty and may damage your SwitchBack PC or Backpack Module and could result in serious injury. There are no user serviceable parts inside the SwitchBack PC. For repair please contact Black Diamond Advanced Technology***

- A. When operating SwitchBack
- i. Avoid magnetic fields
  - ii. Avoid stacking objects on the SwitchBack PC
  - iii. Do not operate the SwitchBack PC while air inlets are blocked

- iv. Do not attempt to modify, disassemble or insert any unintended objects into the SwitchBack PC

### B. Accessories

#### AC/DC Adapter

*Your SwitchBack PC AC/DC Adapter is intended for use in 120VAC, 60Hz (USA) and 220VAC, 50Hz (European) outlets. Do not attempt to plug your AC/DC Adapter into any other type of outlet.*

- i. Do not use the AC/DC Adapter in adverse conditions. The AC/DC Adapter is NOT ruggedized.
- ii. Do not attempt to modify, alter, disassemble or insert anything into the AC/DC Adapter.
- iii. If at any time the AC/DC Adapter becomes excessively hot, smokes, or sparks, immediately disconnect it from the power outlet and SwitchBack PC

### C. Battery

- i. Do not expose battery to extreme heat or fire.
- ii. Do not attempt to modify, disassemble, or insert objects into the battery.
- iii. Do not short the battery.
- iv. Do not attempt to use the battery with any other computer.
- v. If the battery swells or balloons while charging, remove the external power source and move the battery to a fire safe location.
- vi. If liquid from the battery comes in contact with your skin thoroughly wash the skin with soap and water. If contact with the eye occurs, flush with water and seek medical attention.
- vii. Do not leave the charging battery unattended.
- viii. Do not charge the battery near combustible or explosive materials.
- ix. Do not use or charge a damaged battery
- x. Dispose of batteries properly; do not throw in trash, do not place in compactor. Batteries are recyclable. Check for facilities in your area.

### D. Hard Drive

- i. The hard drive within the SwitchBack PC contains no User serviceable parts.
- ii. The hard drive should only be removed by authorized personnel only.
- iii. Do not remove the hard drive when the computer is on.
- iv. Do not attempt to disassemble, modify, or insert objects into the hard drive.
- v. The SwitchBack's hard drive will not work in other devices. Do not attempt to use it with other devices.

To obtain service or technical assistance within the continental U.S.A., Hawaii and Alaska, call **1-480-247-8700** or email Black Diamond Advanced Technology at **bugreport@bdatech.com**

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Black Diamond Advanced Technology, LLC  
(480) 247-8700  
bugreport@bdatech.com  
7450 South Priest Drive  
Tempe, AZ 85283