AKiTiO®

Taurus Super-S LCM

Dual-Bay RAID Storage Enclosure
for two 3.5" Serial ATA Hard Drives

User Manual

May 18, 2010 - v1.2

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1   Introduction

1.1   System Requirements

1.1.1   PC Requirements
- Minimum Intel Pentium III CPU 500MHz, 128MB RAM
- eSATA equipped PC; Windows XP/Vista
- FireWire 400/800 equipped PC; Windows XP/Vista
- USB 2.0 equipped PC; Windows XP/Vista
- Your hardware device must have the correct corresponding port (e.g. USB 2.0 host controller)
- Plug & Play support for eSATA host controller

1.1.2   Mac Requirements
- Minimum Apple G4 processor, 128MB RAM
- eSATA equipped Mac; Mac OS 10.4 or above
- FireWire 400/800 equipped Mac; Mac OS 10.2 or above
- USB 2.0 equipped Mac; Mac OS 10.2 or above
- Your hardware device must have the correct corresponding port (e.g. USB 2.0 host controller)
- Plug & Play support for eSATA host controller

1.1.3   Supported Hard Drives
- Two 3.5" SATA-I or SATA-II hard drives (1.5Gb/s or 3.0Gb/s)
- 20GB - 1.5TB per HDD
- Hard drives of identical capacities are recommended
- Supports large volumes in excess of 2TB

Note

In order for the computer to access volumes larger than 2TB, both the hardware and OS need to have the capacity to support large volumes (e.g.: WinVista 32bit/64bit or Mac OS 10.4 and above).

1.2   Package Contents

Package content may vary depending on vendor & version.

- Taurus Super-S LCM storage enclosure (hard drives not included)
- Power supply
- Interface cables
- Manual

1.3   About this Manual

Firmware, images and descriptions may vary slightly between this manual and the actual product you have. Functions and features may change depending on the firmware version. Please read your warranty carefully, as this may vary between different vendors!

1.4   Trademarks

- MS-DOS, Microsoft, Windows XP/Vista are trademarks of Microsoft Corporation.
- Apple Macintosh and Mac are trademarks of Apple Computer.
- All other third party brands and names are the property of their respective owners.

1.5 Detailed View

1.5.1 Front View
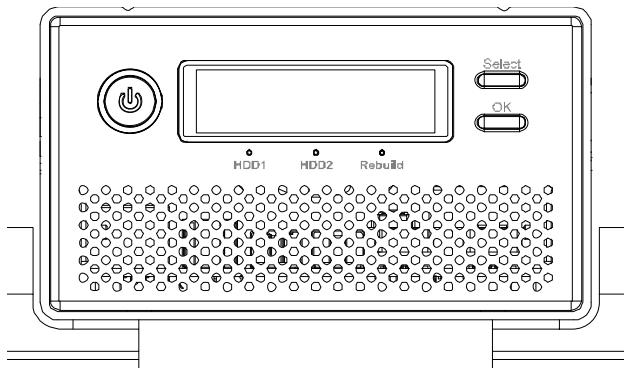
To turn on the device, press and hold the power button for 1 second and then let go.

To turn it off, press and hold the power button for 3 seconds and then let it go again.

Wait at least 5 seconds after turning off the power, before turning it back on, or otherwise it will not work.

LED/Button	Status
⏻	• Power button; blue = power on
HDD1/2	• Green = Data access (read/write) • Red = Error or empty drive bay
Rebuild	• OFF = HDD status normal • Yellow = Rebuilding data
Select	• Select setup menu or mode
OK	• Confirm current option or enter setup menu

1.5.2 Rear View
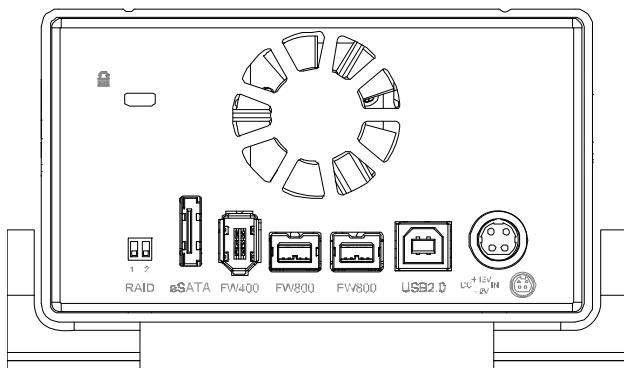
🔒 = Security lock slot

⌾ = Power receptacle

eSATA = External SATA port

FW800 = FireWire 800 port

FW400 = FireWire 400 port

USB 2.0 = USB 2.0 High Speed port

RAID Switch	RAID Mode
	RAID mode can be set via LCD display Switch position: 1 up, 2 down
	RAID mode is locked according to LCD setup Switch position: 1 up, 2 up
	RAID 1 (not possible to set RAID mode via LCD) Switch position: 1 down, 2 up
	RAID 0 (not possible to set RAID mode via LCD) Switch position: 1 down, 2 down

1.6 RAID Modes

Hard drives of identical capacities are recommended. If the capacities are different, the total amount of the space that can be used will depend on the drive with the smallest capacity. The difference in performance is only visible for fast interfaces like eSATA.

1.6.1   RAID 0 - Disk Striping

The drives are shown as one large single volume but the total size will depend on the drive with the smallest capacity. This setting is used where speed is the primary objective but RAID Level 0 (also called striping) is not redundant. This form of array splits each piece of data across the drives in segments; since data is written without any form of parity data-checking, it allows for the fastest data transfer. On the downside, if one drive becomes damaged, the whole array can become corrupted.

Storage Capacity   Data Safety   Performance
                                                                        → 2 drives

1.6.2   RAID 1 - Disk Mirroring

Two drives show up as one volume but only 50% of the total capacity, depending on the drive with the smallest capacity, can be used. RAID 1 creates an exact copy (or mirror) of a set of data on the second drive. This is useful when reliability and backup take precedence over storage capacity. Should one hard drive fail, it can be replaced and the data rebuilt automatically.

Storage Capacity   Data Safety   Performance
                                                                        → 2 drives

1.6.3   Changing the RAID Mode

The RAID mode should be set after installing the drives and before first formatting the drives.

1. Make sure the power is off and then install the hard drives.

2. Set the RAID switch and select your preferred RAID mode or choose the switch position to later set the RAID mode via LCD display.

3. Turn on the power. If you have selected the option to set the RAID mode via LCD display, enter the setup menu and set your preferred RAID mode now.

4. Initialize the disk, create a partition and format the drives.

5. Done.

> **Note**
>
> Changing the RAID mode requires you to re-format the drives. This will erase all data on the hard drives that are being formatted. Make sure to backup all existing data first!

> **Important**
>
> In order for the computer to access volumes larger than 2TB, both the hardware and Operating System need to have the capacity to support large volumes (e.g.: WinVista 32bit/64bit or Mac OS 10.4 and above).

2 System Setup

2.1 Hard Drive Assembly

Your unit may come with pre-installed hard drives. Before opening such an enclosure, please read the warranty from your vendor carefully, as this could void your warranty.

1. Remove the four screws at the bottom of the case, push the inner chassis out and remove the outer enclosure. The aluminium stand does not have to be removed for the assembly.
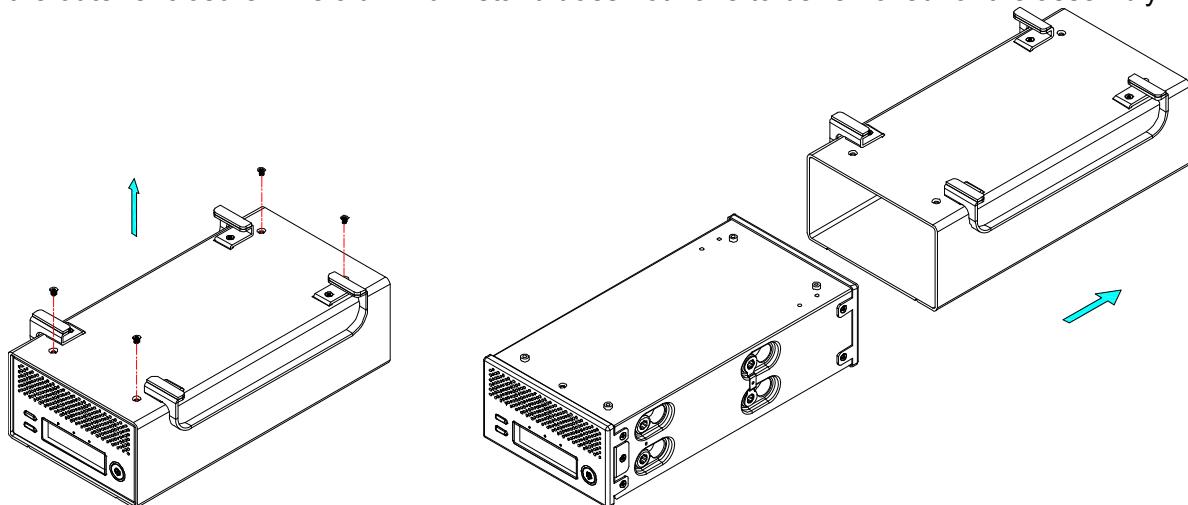

2. Install the first hard drive and mount it with two screws on each side.
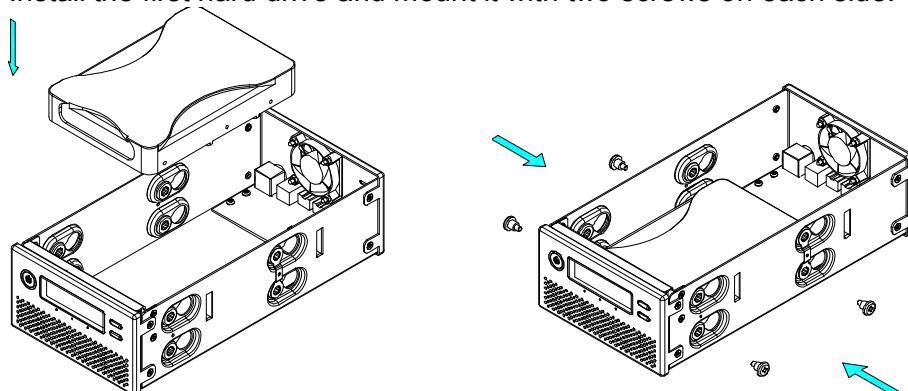

3. Attach the thermal probe (temperature detector) to the first HDD with the tape provided. Choose a place in between the two drives but without damaging the probe when installing the second drive. We also suggest not placing the thermal probe directly in front of the fan.

4. Install the second hard drive and mount it with two screws on each side.
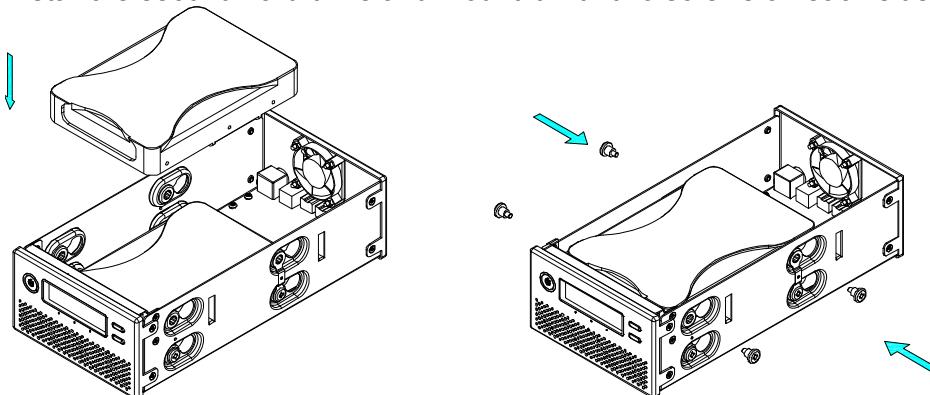
5. Connect the SATA and power cables to your hard drives. Be careful not to damage any components and confirm that the cables are connected firmly.

6. Slide the inner chassis back into the outer enclosure and fasten the four screws to finish the assembly.
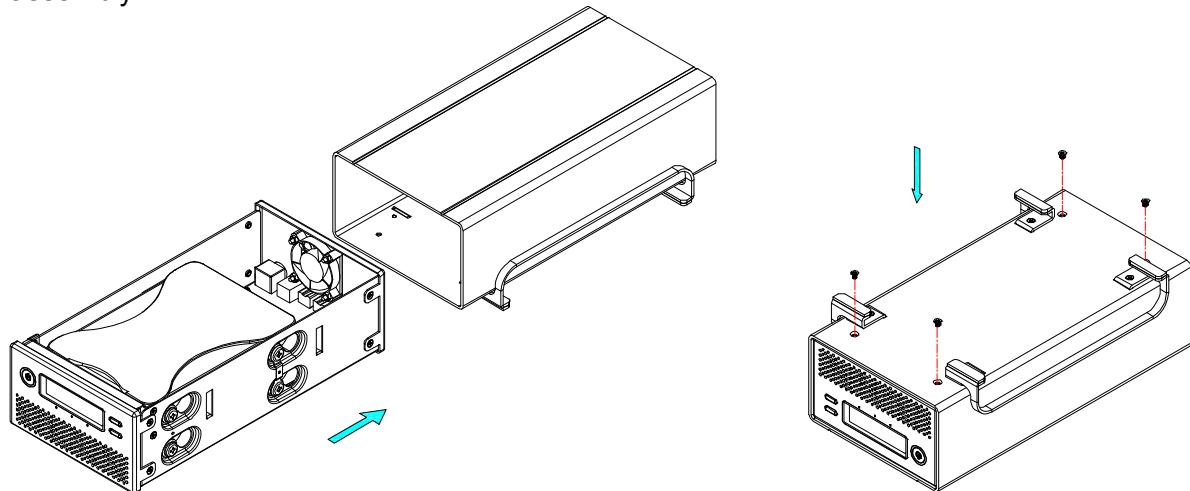
7. After turning on the power and connecting it to the computer use the disk management tool (PC) or disk utility (Mac) to create a new partition and format the drives. If you have selected the option to set the RAID mode via LCD display, set the RAID mode first, before you format the drives.

8. Done! Your drive is now ready to use.

Note

This device is designed for two hard drives and does not work when only one HDD is installed.

Important

Upon initial start up of the device and when changing the RAID mode, any existing data on the installed hard drives will be erased. Please make sure you backup all data prior to installing the hard drives and prior to changing the RAID mode!

2.2 Replacing Hard Drives

When a drive fails, the corresponding HDD LED will light up red. If only one drive is defective and the RAID mode is set to RAID 1, the data can still be accessed, however, we strongly recommend replacing the faulty drive immediately to assure continued proper backup and data safety.

If more than one drive fails at the same time or if the RAID mode is set to RAID 0, the data will be lost and the system can not be accessed again until the drive(s) have been replaced.

1. Check the HDD LED. The corresponding LED will light up red, indicating the defective drive.

2. Turn off the Taurus and remove the power supply from the wall socket.

3. Open the enclosure and replace the faulty hard drive with a new one.

4. Finish the assembly, connect the power supply and turn on the power.

5. For RAID 1, the RAID array will be rebuilt automatically. During this process, the Rebuild LED will be flashing until all data is backed up. Rebuilding the RAID array will take several hours, depending on the drive capacity.

6. For RAID 0, after turning on the power, go to the RAID setup menu, select RAID 0 and confirm the settings. After the restart, simply format the drives.

Note

We recommend not turning off the power during the rebuild process but if the process is interrupted, it will continue rebuilding the data as soon as the power is turned back on.

2.3 Connection to Computer

A few precautions and notes when using your external storage drive:

- Do not expose the product to water or humid conditions.

- Do not cover the enclosure's ventilation holes.

- Before connecting the device, install the hard drives and set your preferred RAID mode.

- For the safe removal of your drive and to ensure that no data is lost, always follow the correct unplug procedure for external hardware (e.g.: Eject the drive before removal).

- In order for the computer to access volumes larger than 2TB, both the hardware and Operating System need to have the capacity to support large volumes (e.g.: WinVista 32bit/64bit or Mac OS 10.4 and above) or the >2TB option should be disabled.

- When the computer goes into stand-by mode, the hard drives in the external enclosure will spin down as well.

- Only one interface can be used at any given time.

2.4 About Data Backup

To protect your files and help prevent the loss of your data, we strongly recommend that you keep two copies of your data, one copy on your Taurus and a second copy either on your internal drive or another storage media such as CD, DVD, Tape or an additional external drive.

Any loss or corruption of data while using the Taurus is the sole responsibility of the user, and under no circumstances will the manufacturer be held liable for compensation or the recovery of this data.

3 LCD Display

The LCD display shows the system status, detailed information about the hard drives as well as the system configuration and provides the option to modify certain device settings.

To select a menu or change an option, use the [Select] button. To enter a menu and confirm a change, use the [OK] button. For further details, follow the on-screen wizard or refer to the following step by step descriptions.

3.1 Main Menu

Press the [Select] button to change between the different menus and press the [OK] button to enter a menu.

1. The main screen displays the product name and the current RAID mode.

2. The system information will show further details about the device configuration and the hardware.

3. The HDD information will show further details about the installed hard drives.

4. The settings menu offers options to change the device configuration.
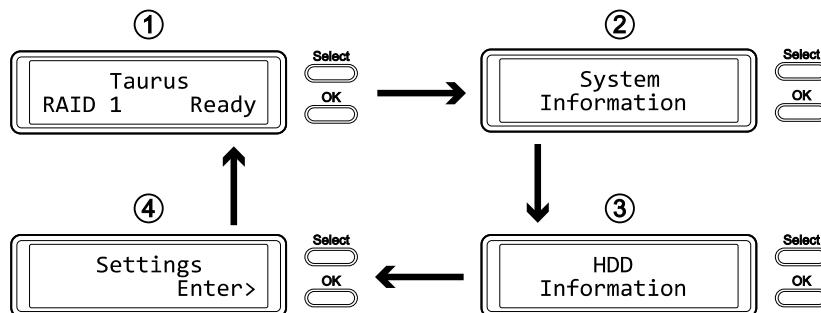
3.2 System Information

Press the [Select] button until the system information menu is selected and then press the [OK] button to start displaying further details about the device configuration and the hardware. It will automatically cycle through the different information displaying each screen for about 8 seconds and then return to the main screen. To fast forward, press the [Select] button.

1. The main screen of the system information menu.

2. The serial number is a combination of the 1394 vendor ID, the chip ID Hi and the chip ID Lo.

3. Displays the current firmware version of the Taurus Super-S LCM.

4. The I/O status shows the interface that is currently used for the connection to the computer.

5. Displays the current speed of the smart-fan and the temperature from its thermal probe.

6. Displays the current status of the >2TB and the alarm function.

7. Displays how the RAID mode is set (HW = DIP switch, LCM = LCD display, AP = external program) and the total storage capacity.

① System Information → ② Serial Number 0001D202454647 → ③ Firmware Version 3.02.1001.0000

④ I/O Status Interface: FW800

⑦ RAID Setup: LCM Capacity: 640GB ← ⑥ >2TB Enabled Alarm ON ← ⑤ Fan: 2821 RPM Temperature: 24C
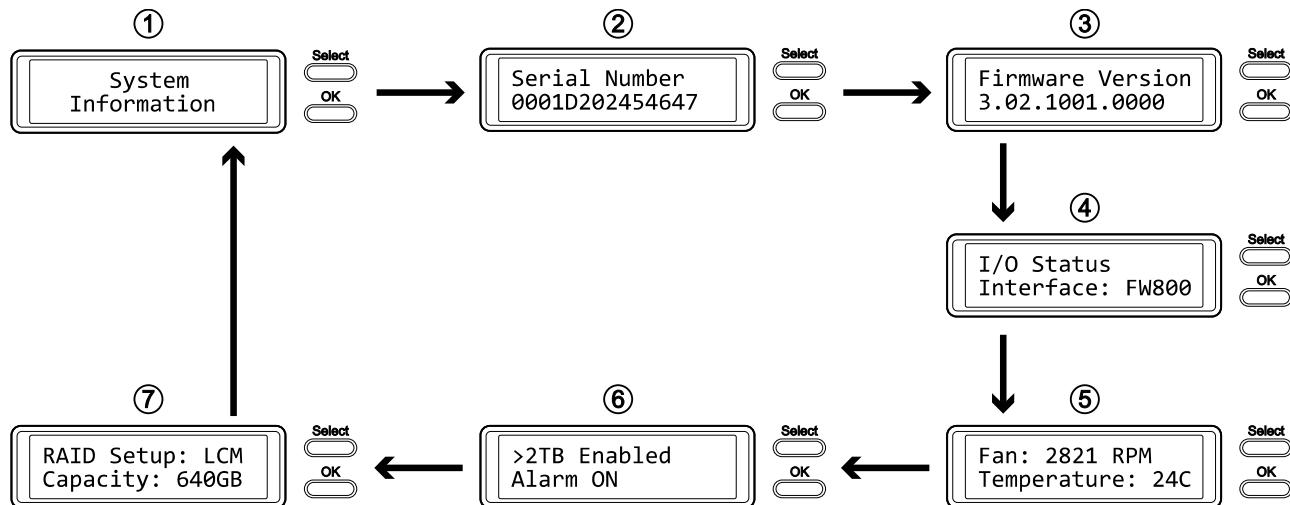
3.3 HDD Information

Press the [Select] button until the HDD information menu is selected and then press the [OK] button to start displaying further details about the installed hard drives. It will automatically cycle through the different information displaying each screen for about 8 seconds and then return to the main screen. To fast forward, press the [Select] button.

1. The main screen of the HDD information menu.

2. Displays the model number and serial number of the drive installed at HDD1.

3. Displays the total storage capacity and the temperature of the drive installed at HDD1.

4. Displays the model number and serial number of the drive installed at HDD2.

5. Displays the total storage capacity and the temperature of the drive installed at HDD2.

① HDD Information → ② HDD1:WDCWD3200KS S/N: WD-WCAPD150 → ③ HDD1 Size: 320GB Temperature: 28C

⑤ HDD2 Size: 320GB Temperature: 27C ← ④ HDD2:WDCWD3200JD S/N: WD-WCAMR193
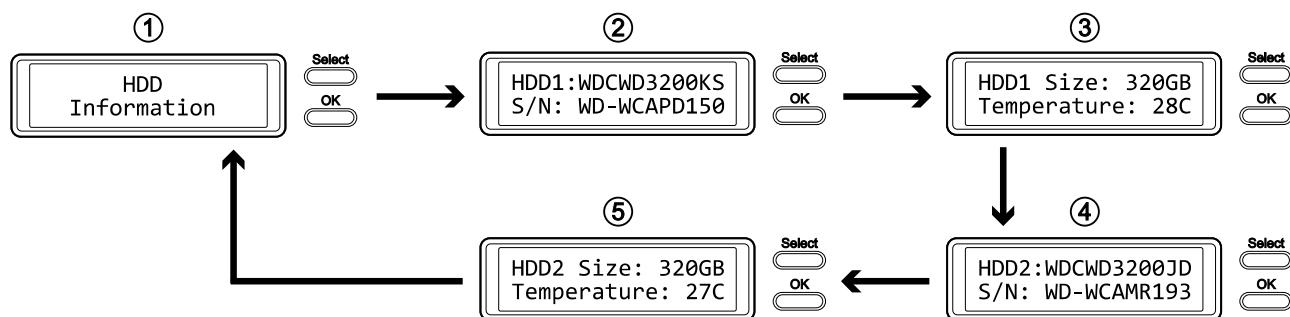
3.4 Settings

Press the [Select] button until the settings menu is selected and then press the [OK] button to enter the configuration menu. You can now use the [Select] button to cycle through the different settings and the [OK] button to further configure the device settings.

1. Option to enable or disable the support for large volumes in excess of 2TB.

2. Setup menu for the RAID settings.

3. Option to enable or disable the general alarm sound.

4. Option to enable or disable the temperature alarm sound.

5. Setup menu to define the fan speed of the smart fan.

6. Setup menu to define how long the backlight for the LCD display stays lit.

7. To exit the settings menu and return to the main menu.
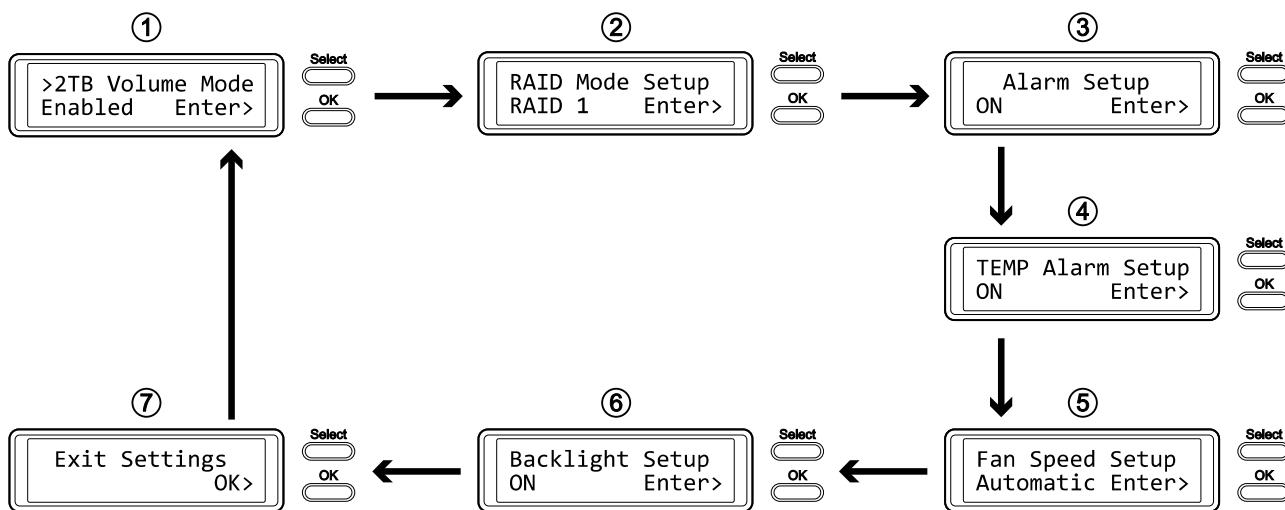
3.4.1 >2TB Volume Mode

In order for the computer to access volumes larger than 2TB, both the hardware and Operating System need to have the capacity to support large volumes (e.g.: WinVista 32bit/64bit or Mac OS 10.4 and above) or the >2TB option should be disabled.

- [Enabled] Supports volumes in excess of 2TB. If the total storage capacity exceeds 2TB, older Operating Systems will not be able to mount and access the drive.

- [Disabled] Only supports volumes up to 2TB. If the total storage capacity exceeds 2TB, the remaining storage space can not be accessed but on the other hand, older Operating Systems are still able to use the drive.

Press the [OK] button to enter the setup menu and press the [Select] button to cycle through the different options.

- To exit the menu without changing any of the settings, press the [Select] button until you see the Exit screen and then press the [OK] button.

- To change the setting, press the [Select] button to choose your preferred mode, press the [OK] button to select it and then press the [OK] button again to confirm the change.

①
```
>2TB Volume Mode
Enabled   Enter>
```
Select
OK

②
```
Select >2TB Mode
Disabled    Set>
```
Select
OK

③
```
Select >2TB Mode
Enabled     Set>
```
Select
OK

③
```
Confirm Settings
            OK>
```
Select
OK

④
```
      Exit
            OK>
```
Select
OK
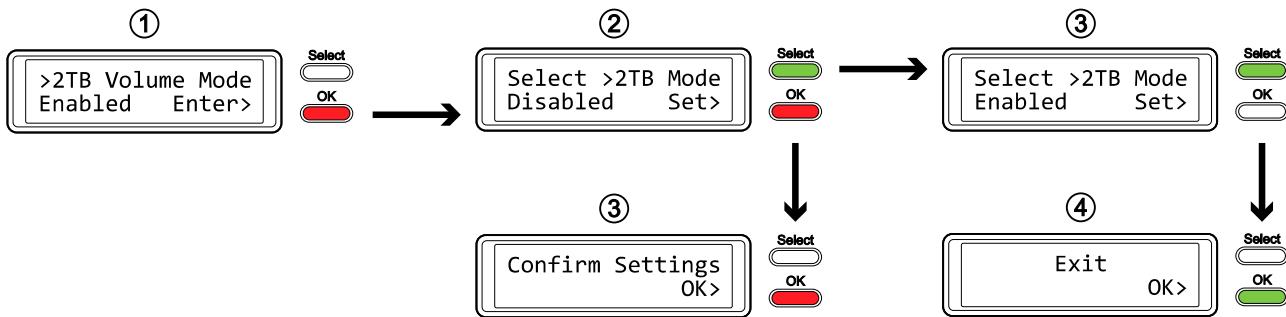
3.4.2 RAID Mode Setup

In order to set the RAID mode via LCD display, make sure the DIP switch position is set as follows: 1 up, 2 down. To lock the setting once it has been changed via LCD display or to set it by using the DIP switch, please refer to the "Rear View" paragraph.

- [RAID 1] Confirm RAID 1 mirroring mode.

- [RAID 0->1] Change the mode from RAID 0 striping to RAID 1 mirroring.

- [RAID 0] Confirm RAID 0 striping mode.

- [RAID 1->0] Change the mode from RAID 1 mirroring to RAID 0 striping.

Press the [OK] button to enter the setup menu and press the [Select] button to cycle through the different options.

- To exit the menu without changing any of the settings, press the [Select] button until you see the Exit screen and then press the [OK] button.

- To change the setting, press the [Select] button to choose your preferred mode, press the [OK] button to select it, press the [OK] button again to confirm the change and once more to acknowledge that all data will be erased by this change. The device will restart automatically and after start up, one more confirmation is required to set the new RAID mode.

①
```
RAID Mode Setup
RAID 1    Enter>
```
Select
OK

②
```
Select RAID Mode
RAID 1->0   Set>
```
Select
OK

③
```
Select RAID Mode
RAID 1      Set>
```
Select
OK

⑥
```
          Abort>
RAID 1->0   OK>
```
Select
OK

③
```
Are you sure?
            OK>
```
Select
OK

④
```
      Exit
            OK>
```
Select
OK

⑤
```
Restarting Now
```
Select
OK

④
```
Erase all data?
            OK>
```
Select
OK
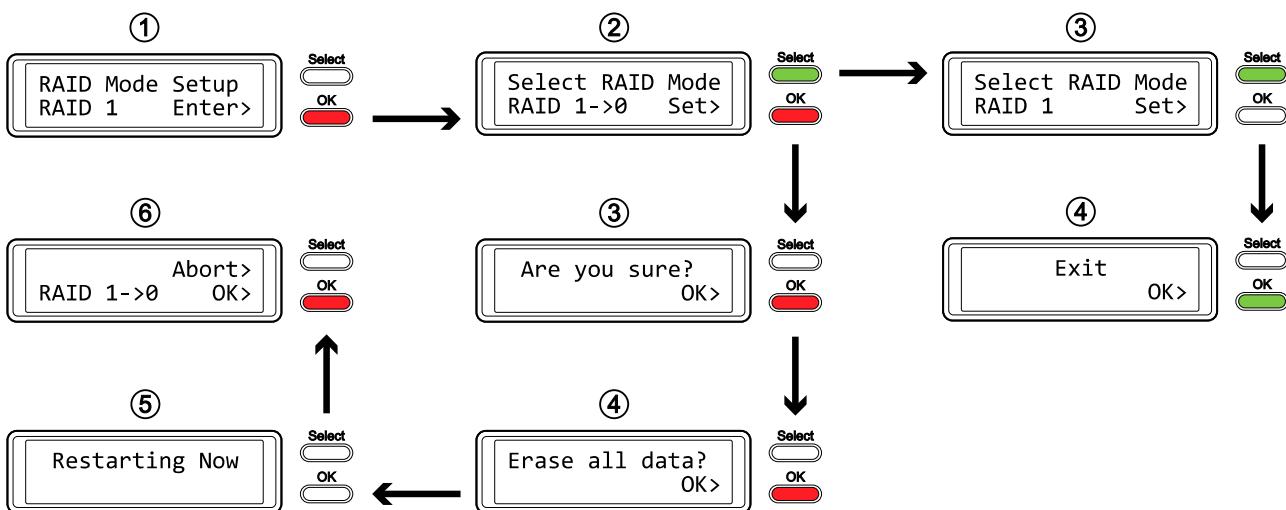
Note

Changing the RAID mode requires you to re-format the drives. Make sure to backup all existing data first!

3.4.3 Alarm Setup

The general alarm sound is the short beep you hear when starting up the system and it will sound when something is wrong. To enable or disable the alarm, do one of the following.

- [ON] Beeper and alarm is enabled.

- [OFF] Beeper and alarm is disabled.

Press the [OK] button to enter the setup menu and press the [Select] button to cycle through the different options.

- To exit the menu without changing any of the settings, press the [Select] button until you see the Exit screen and then press the [OK] button.

- To change the setting, press the [Select] button to choose your preferred mode and then press the [OK] button to confirm the change.
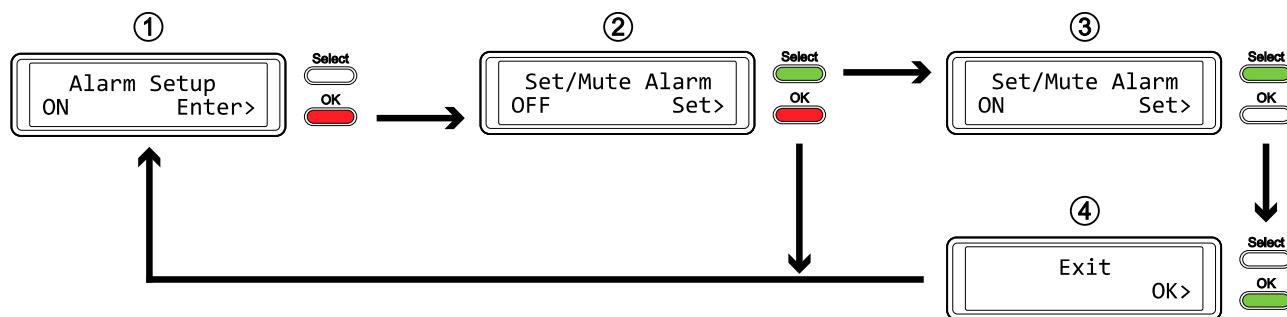

3.4.4 TEMP Alarm Setup

This is the alarm sound you hear when the temperature that is measured by the thermal probe reaches a critical level (>60°C). You can enable or disable it here.

- [ON] High temperature alarm is enabled.

- [OFF] High temperature alarm is disabled.

Press the [OK] button to enter the setup menu and press the [Select] button to cycle through the different options.

- To exit the menu without changing any of the settings, press the [Select] button until you see the Exit screen and then press the [OK] button.

- To change the setting, press the [Select] button to choose your preferred mode and then press the [OK] button to confirm the change.
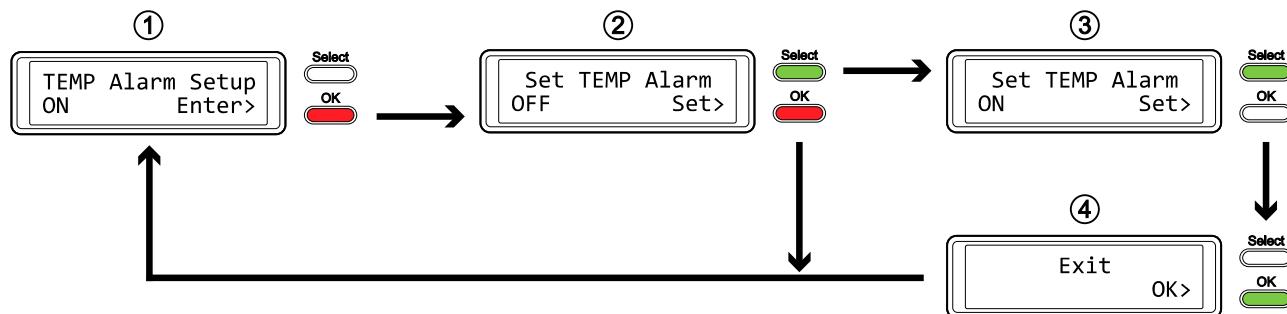
3.4.5   Fan Speed Setup

For the smart-fan to automatically regulate the fan speed according to the internal temperature, the thermal probe has to be installed.

- [Automatic] Regulates the fan speed according to the internal temperature (below 40°C = low speed, 40-50°C = medium speed, above 50°C = high speed).

- [HighSpeed] Fan speed is set to high speed.

- [LowSpeed] Fan speed is set to low speed.

- [OFF] The fan is turned off. This setting should only be used if the device is located in a cool and temperature controlled room.

Press the [OK] button to enter the setup menu and press the [Select] button to cycle through the different options.

- To exit the menu without changing any of the settings, press the [Select] button until you see the Exit screen and then press the [OK] button.

- To change the setting, press the [Select] button to choose your preferred mode and then press the [OK] button to confirm the change.
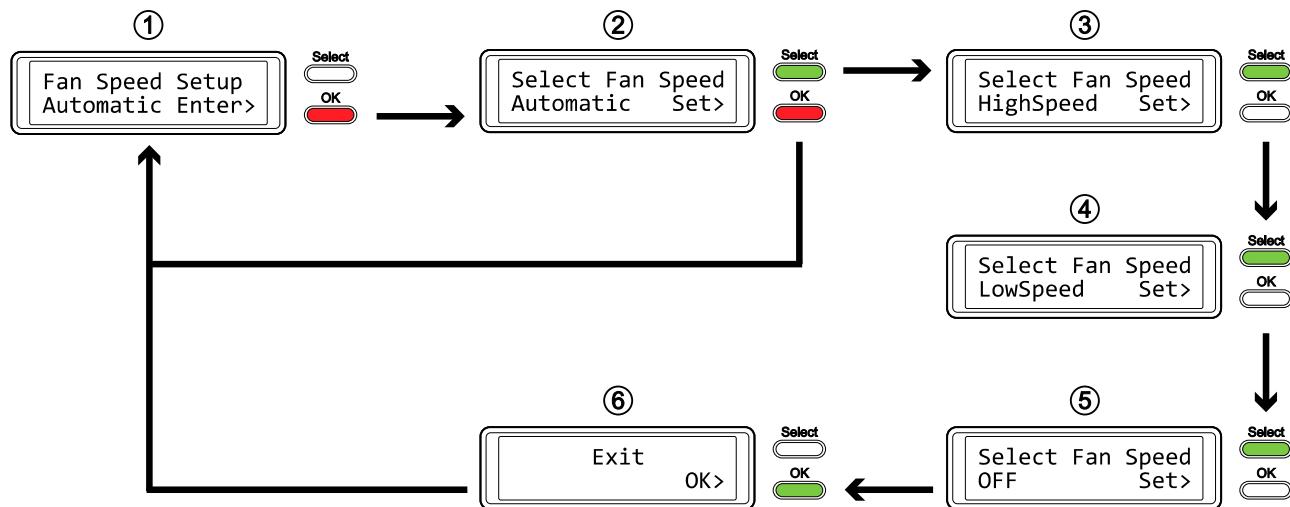
3.4.6   Backlight Setup

The backlight for the LCD display can be enabled, disabled or set so that it turns off automatically, when the screen has been idle for a certain amount of time.

- [ON] Always ON.

- [OFF] Always OFF.

- [1min] Backlight turns off when the screen has been idle for more than one minute.

- [3min] Backlight turns off when the screen has been idle for more than three minutes.

- [5min] Backlight turns off when the screen has been idle for more than five minutes.

Press the [OK] button to enter the setup menu and press the [Select] button to cycle through the different options.

- To exit the menu without changing any of the settings, press the [Select] button until you see the Exit screen and then press the [OK] button.

- To change the setting, press the [Select] button to choose your preferred mode and then press the [OK] button to confirm the change.
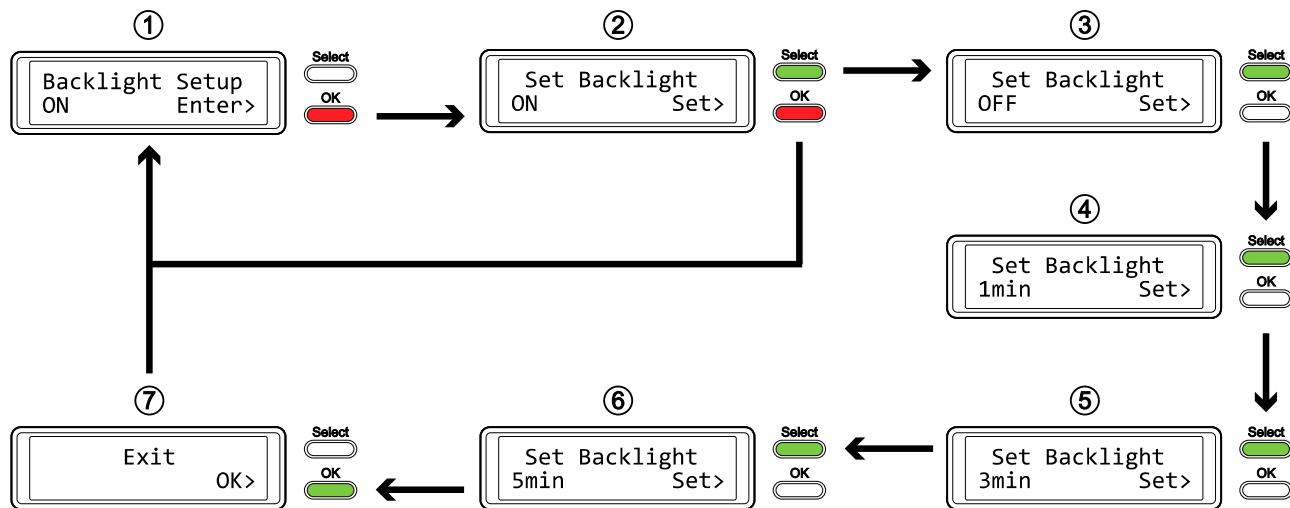
3.5 Event Information

In addition to the details about the hardware and device configuration, the LCD display will also show certain event information. Following is a list of possible messages and their meanings.

- **[HDD Error / Remaining 1xHDD]**
  When using RAID 0 and one of the drives fails, the alarm will go off and the display indicates that only one good drive remains. Refer to the HDD LED's in order to locate the defective drive.

- **[RAID Warning / Degraded Array]**
  When using RAID 1 and one of the drives fails, the alarm will go off and the display shows this message. Press the [OK] button to temporarily mute the alarm and use the HDD LED's in order to locate the defective drive.

- **[XX Cable / Connected]**
  Shows which cable has been connected.

- **[Cable / Disconnected]**
  Shows when the cable has been unplugged.

- **[Rebuilding… / Hrs left xhxxmin]**
  Shows during the rebuild process of a RAID 1 array with an approximate time in hours and minutes indicating how long it takes until the backup is done.

- **[Alarm / High Temperature]**
  Indicates critical temperature (>60°C).

- **[Alarm / Fan Failure]**
  Indicates a fan failure or unexpectedly slow RPM.

- **[Detecting Disk / Starting…]**
  Shows during start up of the system.

- **[XX / Starting …]**
  Shows during start up of the system.

- **[Check DIP Switch]**
  Shows when trying to change the RAID mode via LCD display but the DIP switch is set to a specific RAID mode already.

- **[Modify DIP Switch]**
  Shows when pressing Abort after changing the DIP switch to a different RAID mode. Remember to modify the DIP switch and set it back to the previous mode if you don't want to change it.

- **[RAID Mode Locked]**
  Shows when trying to change the RAID mode via LCD display but the DIP switch is set to lock the settings.

4 Appendix

4.1 Precautions

4.1.1 Power on/off precautions
It is highly recommended to switch the unit off when not in use. When re-locating the device or when not in use for an extended period of time, we strongly recommend unplugging the unit.

4.1.2 Location and placing precautions
Avoid positioning your device in the following places:

- Locations with direct sunlight, next to radiators, other sources of heat.
- Locations with very high temperatures (more than 38°C) or humidity (more than 90%).
- Very dusty or sandy locations.
- Locations subject to vibration, shock, or with a sloping base.

4.1.3 Electricity and power plug
Careful attention must be paid to the following points in order to prevent damage, fire, and/or injury:

- When removing the power cable from the socket, pull on the plug fixture and never on the cord.
- Do not connect and remove the power cable with wet hands.
- Keep the power cable away from heaters.
- Never try to repair the power cable yourself or to modify it in any way.
- If the unit is dropped or becomes damaged in any other way, unplug the power cable.
- Always connect the power adapter to your device before you plug it into the wall socket.

4.1.4 Cables
Use only the cables supplied or recommended by your vendor in order to avoid the risk of malfunction, electric shock, and/or possible interference to the device.

4.2 FAQ

Q: What file system should I choose to format my drive?
A: This will depend on how you want to use the drive but in general, we recommend:
- Windows XP/Vista → NTFS
- Mac OS X → HFS+ (Mac OS Extended)
- To use it on both PC and Mac → FAT32 (single file size is limited to 4GB)

Q: How many drives can fail before I lose my data?
A: For RAID 0, any drive failure will result in the data being lost. For RAID 1, more than one drive failure at the same time will mean the data can not be recovered anymore.

Q: Can I install only one hard drive?
A: No, the Taurus Super-S LCM requires two hard drives.

Taurus Super-S LCM

3.5" 雙槽 RAID 儲存外接盒
適用於兩個 3.5" Serial ATA 硬碟

使用說明書

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1 簡介

1.1 系統需求

1.1.1 PC 需求

- 最少 Intel Pentium III CPU 500MHz, 128MB RAM
- 配備 eSATA 的 PC; Windows XP/Vista
- 配備 FireWire 400/800 的 PC; Windows XP/Vista
- 配備 USB 2.0 的 PC; Windows XP/Vista
- 您的硬體裝置至少要有相對應的連接埠(例 USB 2.0 控制器)
- 支援隨插即用的 eSATA 控制器

1.1.2 Mac 需求

- 最少 Apple G4 processor, 128MB RAM
- 配備 eSATA 的 Mac; Mac OS 10.4 或以後的版本
- 配備 FireWire 400/800 的 Mac; Mac OS 10.2 或以後的版本
- 配備 USB 2.0 的 Mac; Mac OS 10.2 或以後的版本
- 您的硬體裝置至少要有相對應的連接埠(例 USB 2.0 控制器)
- 支援隨插即用的 eSATA 控制器

1.1.3 支援的硬碟裝置

- 兩個 3.5" SATA-I 或 SATA-II 硬碟 (1.5Gb/s or 3.0Gb/s)
- 每個硬碟支援 20GB - 1.5TB
- 建議使用相同容量的硬碟
- 支援超過 2TB 的容量

附註

為了讓電腦能存取超過 2TB 的容量，硬體與作業系統必須要支援大容量(例.: WinVista 32bit/64bit 或 Mac OS 10.4 以後的版本)。

1.2 包裝內容物

內容物或許會因為代理商與版本的不同而有變化。.

- Taurus Super-S LCM 儲存外接盒 (不包含硬碟)
- 電源供應器
- 各界面傳輸線
- 使用手冊

1.3 關於此說明書

此說明書所說的韌體、圖片與描述可能與您實際拿到的產品有些許差異。功能與特色會根據韌體版本而有更改。請仔細詳讀您的保固說明，而這也會因不同的代理商而有不同！

1.4 商標

- MS-DOS, Microsoft, Windows XP/Vista 是 of Microsoft Corporation 的商標。
- Apple Macintosh 與 Mac 是 Apple Computer 的商標。
- 其他第三方品牌與名稱均屬於各自的擁有者。

1.5 細部解說

1.5.1 前視圖
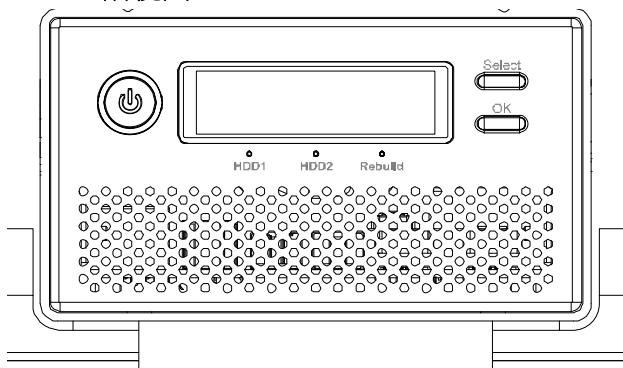
開啟裝置,先按住電源開關一秒鐘,然後裝置便會啟動。

關閉裝置,按住電源開關三秒鐘,便會關閉裝置。

關閉裝置後欲重新開啟,至少等五秒鐘之後,否則裝置不會啟動。

LED/按鈕	狀態
⏻	• 電源按鈕; 藍色 = 開機
HDD1/2	• 綠色 = 資料存取中 (讀/寫) • 紅色 = 錯誤或是空的插槽
Rebuild	• 熄滅 = 硬碟狀態正常 • 黃色 = 資料重建中
Select	• 選擇設定選單或是模式
OK	• 選定現在的選項或是進入設定選單

1.5.2 後視圖
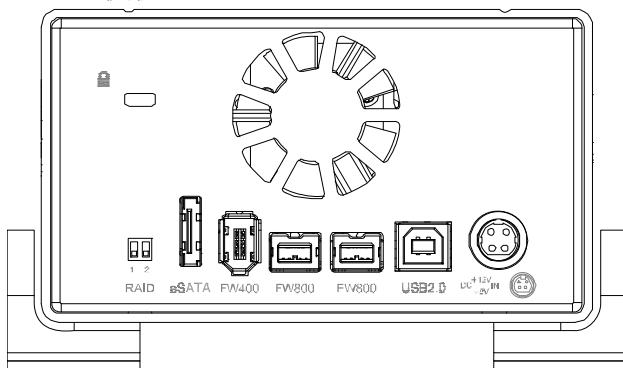
🔒 = 安全鎖插槽

⊙ = 電源接頭
輸入電源：DC +5V/4.2A, 12V/3A

eSATA = 外接 SATA 連接埠

FW800 = FireWire 800 連接埠

FW400 = FireWire 400 連接埠

USB 2.0 = USB 2.0 High Speed 連接埠

RAID 開關	RAID 模式
	RAID 模式可以透過 LCD 螢幕來設定 開關位置: 1 上，2 下
	RAID 模式在 LCD 設定是鎖定的 開關位置：1 上，2 上
	RAID 1 (透過 LCD 不能設定 RAID 模式) 開關位置：1 下，2 上
	RAID 0 (透過 LCD 不能設定 RAID 模式) 開關位置：1 下，2 下

1.6 RAID 模式

建議使用相同容量的硬碟。如果容量不同,那麼可用空間的總容量會根據最小的那顆硬碟來決定。效能上的差異只會在快速的介面上看到,如 eSATA。

1.6.1 RAID 0 - Disk Striping

磁碟機顯示出來會是一個大的獨立磁碟,不過總容量會根據最小的硬碟容量來決定。這個設定是用來把速度當作優先目標,但是 RAID 0 (也叫做 striping) 並沒有備援。這種陣列將每個資料分成片段儲存在每個磁碟中;當資料寫入而且不再做任何形式的同位元資料檢查,它可以做最快速的資料傳輸。缺點是,如果有一顆磁碟故障,那麼整個陣列就會毀壞。

Storage Capacity	Data Safety	Performance	
			→ 2 個磁碟

1.6.2 RAID 1 - Disk Mirroring

兩個硬碟顯示成一個磁碟,但是可用的容量是根據最小硬碟所構成總量的 50%。RAID 1 製造一個完全複製(或鏡射)的資料到第二顆硬碟。這對於重視可靠性與備份優先於容量的情況來說是很有用的。當一顆硬碟故障,它能切換並自動重建資料。

Storage Capacity	Data Safety	Performance	
			→ 2 drives

1.6.3 更換RAID模式

RAID 模式應該要在裝好硬碟後並在第一次格式化硬碟前設定好。

1. 確定電源是關閉的,然後裝好硬碟。

2. 設定 RAID 開關並選擇您想用的 RAID 模式,或是將開關切換成稍等使用 LCD 螢幕來設定 RAID 模式。

3. 打開電源。如果您選擇透過 LCD 螢幕來設定 RAID 模式,進入設定選單並在現在設定您想用的 RAID 模式。

4. 初始化磁碟,建立硬碟分割區並格式化這個硬碟。

5. 完成。

附註

變更 RAID 模式會要您重新格式化磁碟。這會把格式化的硬碟上的所有資料刪除。請先確定您已經備份所有的資料。

重要

為了讓電腦能存取超過 2TB 的容量,硬體與作業系統必須要支援大容量(例.: WinVista 32bit/64bit 或 Mac OS 10.4 以後的版本)。

2 系統設置

2.1 組裝硬碟

您的組件或許會有預先裝好的硬碟。在打開這個外接盒之前,請仔細閱讀您的代理商保固說明,因為這可能讓您的保固無效。

1. 鬆開四顆在外殼底部的螺絲,把內側的機殼推出來並移開外側的機殼。這個組裝不需要把鋁製的腳架拆下來。
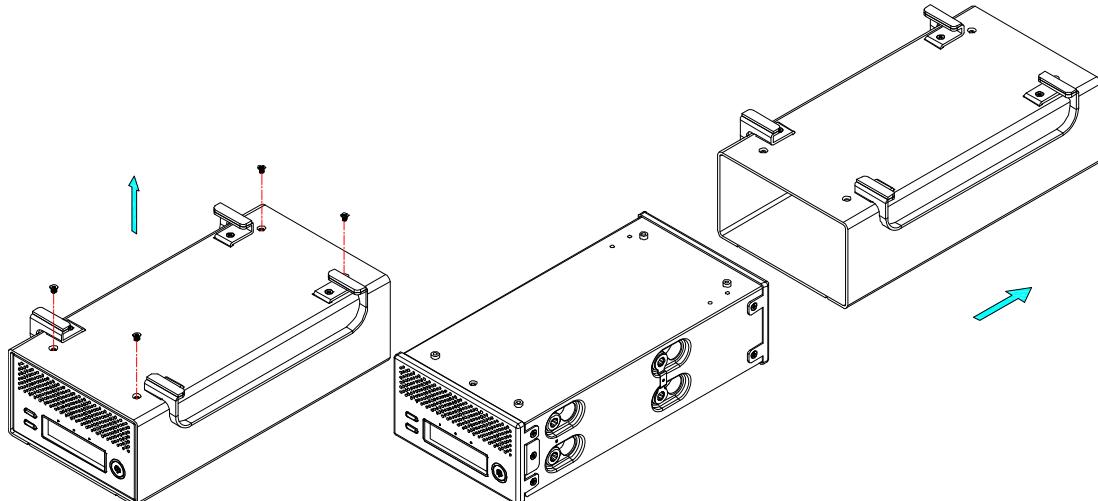
2. 安裝第一顆硬碟並將它兩側各鎖上兩顆螺絲。
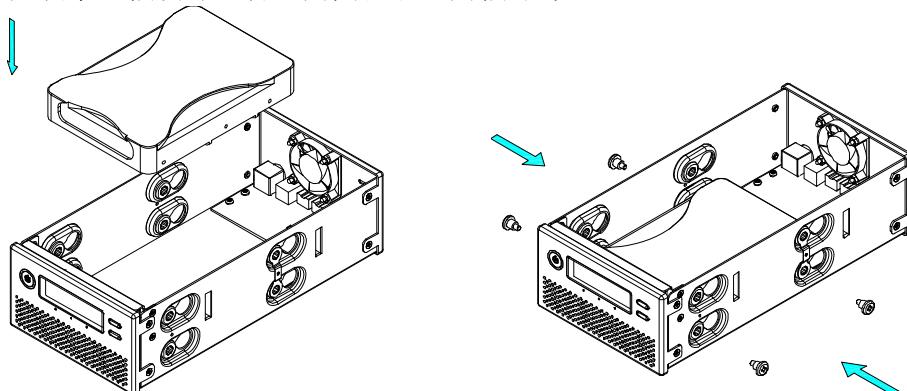
3. 接上用來偵測第一顆硬碟溫度的接線。選擇一個在兩顆硬碟中間但不會在裝上第二顆硬碟時造成損壞的地方安裝這個溫感線。我們也建議不要把溫感線直接裝在風扇前面。

4. 安裝第二顆硬碟並將它兩側各鎖上兩顆螺絲。
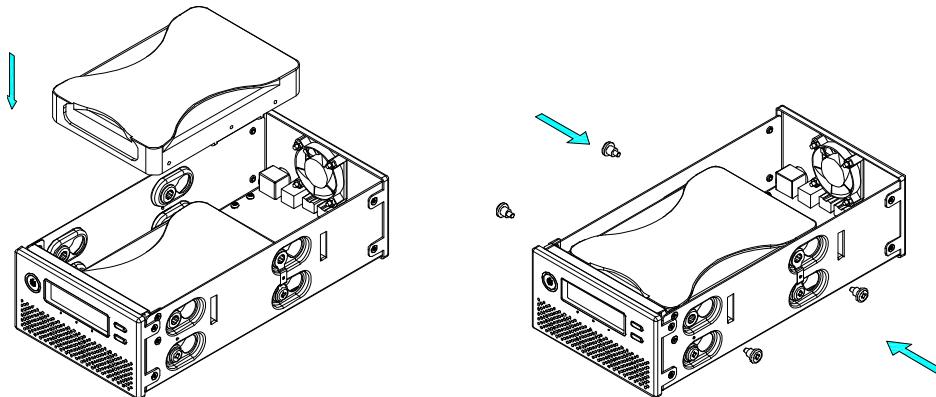
5. 連接 SATA 與電源線到您的硬碟。注意不要損壞到任何元件並確定線材有穩固地接好。

6. 將內側機殼裝回外側機殼並且將四個螺絲鎖好來完成組裝。
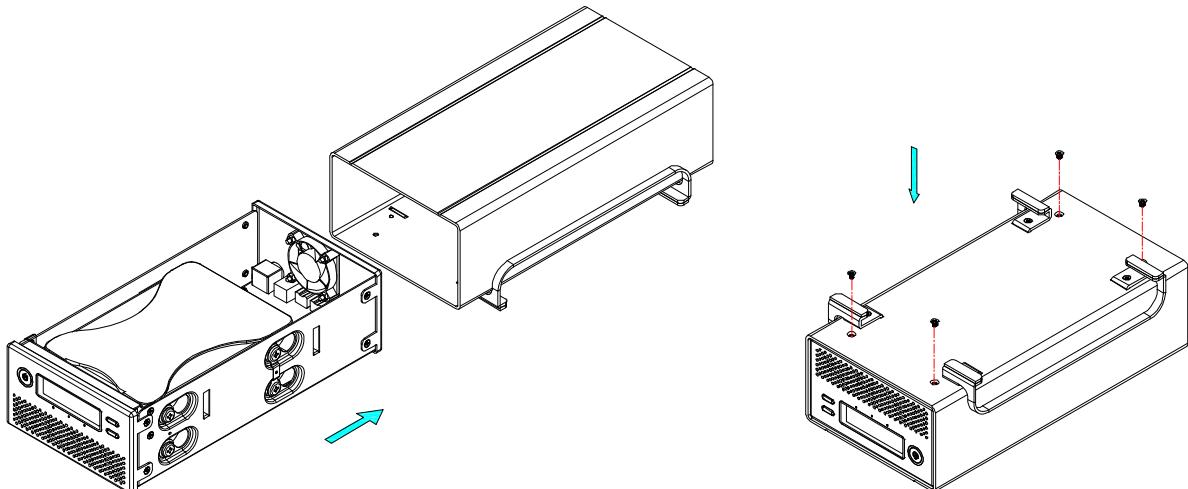
7. 將電源打開並將它接到電腦，使用磁碟管理工具(PC)或磁碟工具(Mac)來製造一個新的磁碟分區並格式化這個磁碟。如果您選擇透過 LCD 顯示器來設定 RAID 模式，在您格式化硬碟之前先設定好 RAID 模式，

8. 完成！您的磁碟已經準備好來使用。

附註

這個裝置是設計來針對兩顆硬碟使用，而且只安裝一顆硬碟時會無法使用。

重要

一開始使用這個裝置與變更 RAID 模式的時候，任何存在安裝進去的硬碟上的資料會被刪除。請在安裝硬碟與變更 RAID 之前確定您備份了所有的資料！

2.2 更替硬碟

當一顆硬碟故障後，對應的硬碟 LED 會閃紅色。如果只有一個硬碟故障而且 RAID 模式設定為
RAID 1 ，那麼資料還是可以被存取，然而，我們還是強烈建議立即更換故障的硬碟以確保備份的功
能以及資料的安全性。

如果有超過一顆硬碟同時故障或是 RAID 模式設定在 RAID 0，那麼資料將會消失而且系統無法存
取，直到硬碟被更換為止。

1. 檢查硬碟 LED。對應的 LED 將會閃著紅色來標示故障的硬碟。

2. 關閉 Taurus 並從電源插頭拔掉電源線。

3. 打開外殼並用一顆新的硬碟來替代故障的硬碟。

4. 組裝完成，接上電源線並打開電源。

5. 在 RAID 1 狀態， RAID 陣列將會自動重建。這段期間，重建的 LED 會閃爍直到備份完成。
    重建 RAID 陣列會根據硬碟大小需時幾個小時。

6. 在 RAID 0 狀態，打開電源之後，到 RAID 設定選單，選擇 RAID 0 並確認選項。重新啟動之
    後，就可以格式化硬碟。

附註
我們建議在重建過程中不要關閉電源，不過如果有被中斷，它會在電源回來之後盡快的開始重建資
料。

2.3 與電腦連線

當使用您的外接儲存裝置時的一些注意事項：

* 不要讓產品暴露在潮濕或有水的環境。

* 不要蓋住外接盒的通風孔。

* 連接裝置之前，裝好硬碟並設定您想用的 RAID 模式。

* 為了安全的移除您的硬碟並確保資料不會流失，請遵守正確的移除外接硬體的程序 (例：移除硬
  碟前請先退出)。

* 為了讓電腦能存取超過 2TB 的容量，硬體與作業系統必須要支援大容量(例.: WinVista 32bit/64bit
  或 Mac OS 10.4 以後的版本)，不然大於 2TB 的選項應該被停用。

* 當電腦進入待命模式，外接盒中的硬碟也會降低轉速。

* 任何時候都只能使用一個介面來連線。

2.4 關於資料備份

為了保護您的檔案並避免資料流失，我們強烈建議您將資料保存兩份備份，一份儲存在您的 Taurus
而第二個備份儲存在內接硬碟或另一種儲存媒介，像是 CD、DVD、磁帶或是另一個外接磁碟。

使用 Taurus 時，任何的資料流失或損壞是使用者的責任，製造商不用負擔任何賠償責任或是將資料
復原。

3 LCD 顯示器

LCD 顯示器能顯示系統狀態、硬碟的詳細資訊,像是系統組態與提供選項來修改一些裝置設定。

要選擇一個選單或是變更一個項目,使用 [Select] 按鈕。要進到一個選單與確認變更,使用 [OK]按鈕。要更多細節,根據螢幕精靈操作或是參考下面的逐步使用描述。

3.1 主選單

按下 [Select] 按鈕在不同的選單間切換並按下[OK] 按鈕來進入一個選單。

1. 主選單顯示產品名稱與現在的 RAID 模式。

2. System information 會顯示更多裝置組態與硬體的細節。

3. HDD information 會顯示安裝在內的硬碟的更多資訊。

4. Settings 選單提供選項來變更系統組態。
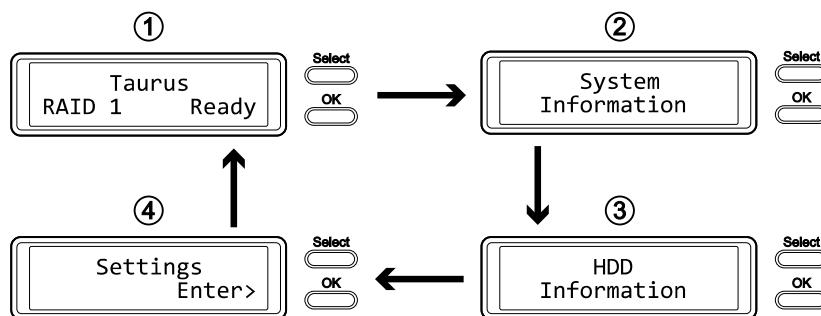
3.2 系統資訊

按下 [Select] 按鈕直到選到 system information 選單然後按下 [OK] 按鈕來顯示系統組態與硬體的更多資訊。它會自動在於螢幕循環顯示各個不同資訊 8 秒鐘再回到主螢幕。要快轉,請按下[Select] 按鈕。

1. System information 選單的主螢幕。

2. Serial number 是 1394 vendor ID, 晶片 ID Hi 與晶片 ID Lo 的結合顯示。

3. 顯示現在的 Taurus Super-S LCM 韌體版本。

4. I/O status 顯示目前是使用哪個介面與電腦做連線。

5. 顯示目前的風扇速度與溫控線測得的溫度。

6. 顯示現在>2TB 功能的與警告功能的狀態。

7. 顯示設定在哪個 RAID 模式 (HW = DIP 開關、LCM = LCD 顯示器、AP = 外部程式) 以及總儲存容量。

① Select OK
```
System
Information
```

② Select OK
```
Serial Number
0001D202454647
```

③ Select OK
```
Firmware Version
3.02.1001.0000
```

④ Select OK
```
I/O Status
Interface: FW800
```

⑦ Select OK
```
RAID Setup: LCM
Capacity: 640GB
```

⑥ Select OK
```
>2TB Enabled
Alarm ON
```

⑤ Select OK
```
Fan: 2821 RPM
Temperature: 24C
```
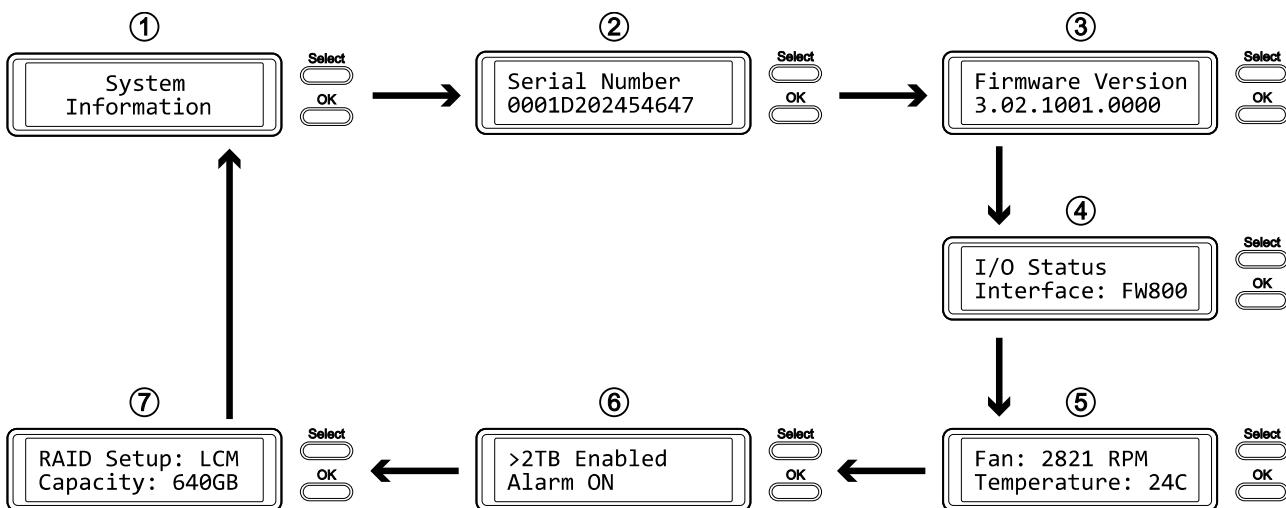
3.3 硬碟資訊

按下 [Select] 按鈕直到 HDD information 選單出現並按下[OK] 按鈕來顯示安裝硬碟的詳細資訊。它會自動在於螢幕循環顯示各個不同資訊 8 秒鐘再回到主螢幕。要快轉，請按下[Select] 按鈕。

1. HDD information 選單的主螢幕。

2. 顯示安裝在 HDD1 的硬碟型號與序號

3. 顯示安裝在 HDD1 的硬碟總儲存容量與溫度。

4. 顯示安裝在 HDD2 的硬碟型號與序號

5. 顯示安裝在 HDD2 的硬碟總儲存容量與溫度。

① Select OK
```
HDD
Information
```

② Select OK
```
HDD1:WDCWD3200KS
S/N: WD-WCAPD150
```

③ Select OK
```
HDD1 Size: 320GB
Temperature: 28C
```

⑤ Select OK
```
HDD2 Size: 320GB
Temperature: 27C
```

④ Select OK
```
HDD2:WDCWD3200JD
S/N: WD-WCAMR193
```
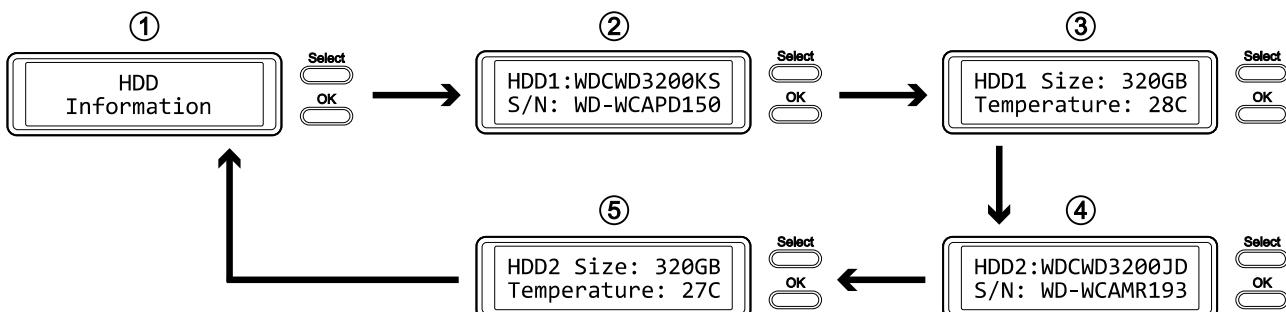
3.4 設定

按下 [Select] 按鈕直到選到 Settings 選單並按下 [OK] 按鈕來進入組態選單。您能使用[Select] 按鈕來循環選擇不同的設定並按下 [OK] 按鈕來調整裝置設定。

1. 開啟與關閉支援超過 2TB 容量的選項。

2. RAID 設定的設定畫面。

3. 開啟與關閉一般警告聲音的選項。

4. 開啟與關閉溫度警告聲的選項。

5. 定義自動溫控風扇轉速的設定選單。

6. LCD 顯示器背光顯示時間的設定畫面。

7. 離開 Settings 選單並回到主選單。
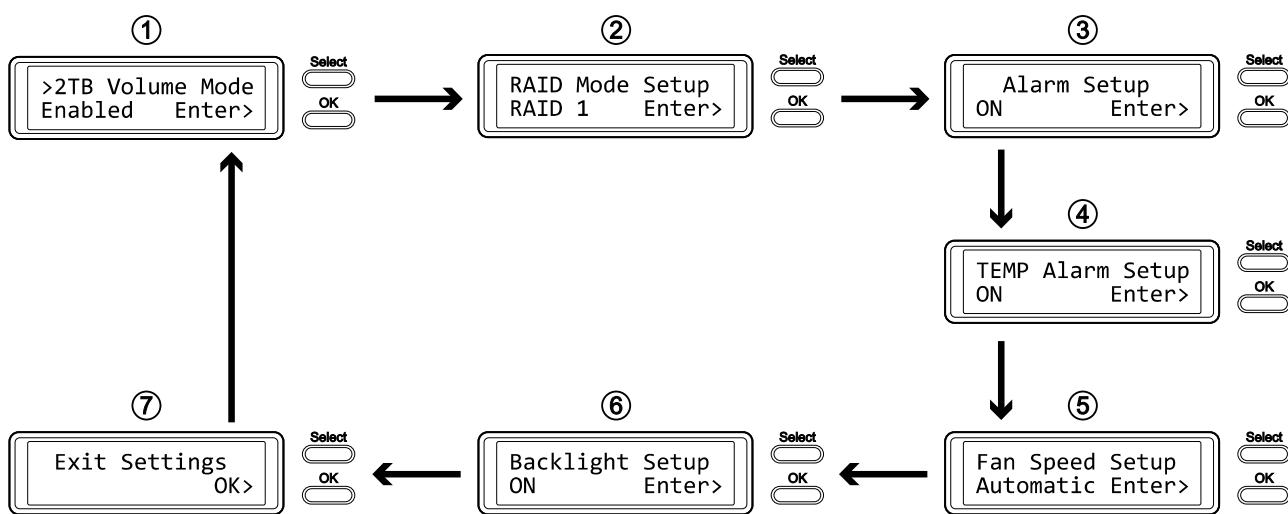
3.4.1 >2TB容量模式

為了讓電腦能存取超過 2TB 的容量，硬體與作業系統必須要支援大容量(例.: WinVista 32bit/64bit 或 Mac OS 10.4 以後的版本)，不然大於 2TB 的選項應該被停用。

- [Enabled] 支援容量超過 2TB。如果總儲存容量超過 2TB，較舊的作業系統會不能掛載並存取這個磁碟。

- [Disabled] 只支援最高到 2TB。如果總儲存容量超過 2TB，那麼剩餘的儲存空間會無法被存取。但另一方面，較舊的作業系統還是可以使用這個磁碟。

按下[OK] 按鈕來進入設定選單並按下[Select] 來循環選擇不同的選項。

- 要離開這個選單並不變更任何設定，按下 [Select] 按鈕直到您看到 Exit 畫面並按下 [OK] 按鈕。

- 要變更設定，按下[Select] 按鈕來選擇您想選擇的模式，按下[OK] 按鍵來選擇並再次按下[OK] 按鍵來確定變更。

①
```
>2TB Volume Mode
Enabled   Enter>
```
②
```
Select >2TB Mode
Disabled    Set>
```
③
```
Select >2TB Mode
Enabled     Set>
```
③
```
Confirm Settings
            OK>
```
④
```
        Exit
            OK>
```
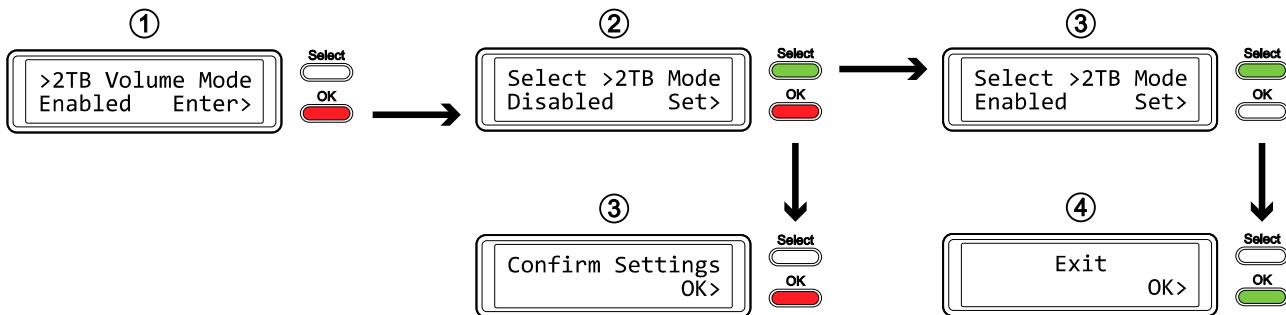
3.4.2 **RAID** 模式設定

要透過 LCD 顯示器來設定 RAID 模式，確定 DIP 開關的設定如下： 1 上， 2 下。要鎖定這個設定請先透過 LCD 顯示器變更過一次或透過 DIP 開關設定，請參考 "後視圖"。

- [RAID 1]確認 RAID 1 鏡射模式。

- [RAID 0->1] 更改模式從 RAID 0 切分到 RAID 1 鏡射。

- [RAID 0] 確認 RAID 0 切分模式。

- [RAID 1->0] 更改模式從 RAID 1 鏡射到 RAID 0 切分。

按下 [OK] 按鈕來進入設定選單並按下[Select] 按鈕來循環不同的選項。

- 要離開這個選單並不變更任何設定，按下 [Select] 按鈕直到您看到 Exit 畫面並按下 [OK] 按鈕。

- 要變更設定，按下[Select] 按鈕來選擇您想選擇的模式，按下[OK] 按鍵來選擇並再次按下[OK] 按鍵來確定變更並再次提醒，要是確認這個變更將會刪掉所有資料。裝置會自動重開機並在開機之後再次確認是否要更改到新的 RAID 模式。

①
```
RAID Mode Setup
RAID 1    Enter>
```
②
```
Select RAID Mode
RAID 1->0   Set>
```
③
```
Select RAID Mode
RAID 1      Set>
```
⑥
```
         Abort>
RAID 1->0    OK>
```
③
```
Are you sure?
            OK>
```
④
```
        Exit
            OK>
```
⑤
```
Restarting Now
```
④
```
Erase all data?
            OK>
```

附註
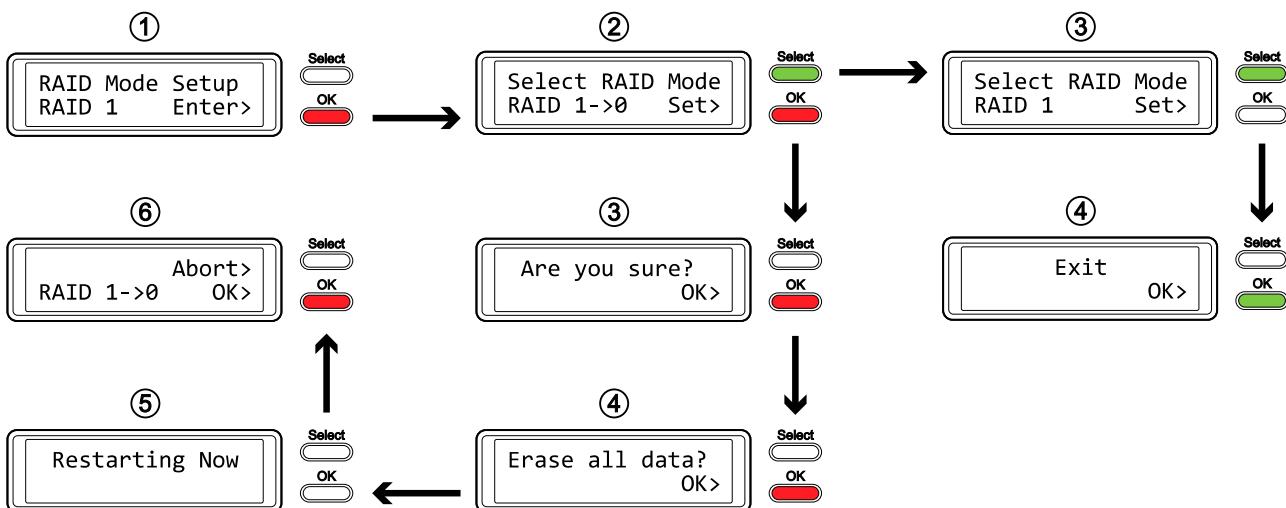
變更 RAID 模式會要您重新格式化磁碟。請先確認已經備份所有的資料！

3.4.3　警告設定

一般的警告聲是短的嗶聲，系統啟動時如果有問題它會發出聲音。要啟動或關閉警告聲，請參照下列步驟。

- [Enabled] 蜂鳴器與警告聲啟動。

- [Disabled] 蜂鳴器與警告聲關閉。

按下 [OK] 按鈕來進入設定選單並按下[Select] 按鈕來循環不同的選項。

- 要離開這個選單並不變更任何設定，按下 [Select] 按鈕直到您看到 Exit 畫面並按下 [OK] 按鈕。

- 要變更設定，按下[Select] 按鈕來選擇您想選擇的模式，按下[OK] 按鍵來選擇並再次按下[OK] 按鍵來確定變更。

```
①                          ②                          ③
┌──────────────┐           ┌──────────────┐           ┌──────────────┐
│ Alarm Setup  │  Select   │Set/Mute Alarm│  Select   │Set/Mute Alarm│
│ ON     Enter>│   OK      │OFF       Set>│   OK      │ON        Set>│
└──────────────┘           └──────────────┘           └──────────────┘

                                                       ④
                                                       ┌──────────────┐
                                                       │ Exit         │  Select
                                                       │          OK> │   OK
                                                       └──────────────┘
```
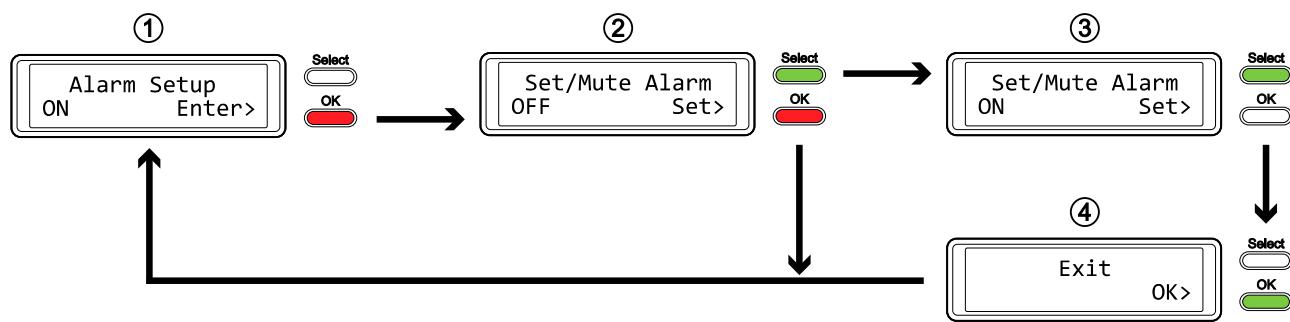
3.4.4　溫度警告設定

這是當溫控線測到溫度達到臨界值(>60˚C)時會聽到的警告聲。您可以在此啟動或關閉它。

- [Enabled] 啟動高溫警告。

- [Disabled] 關閉高溫警告。

按下[OK] 按鈕來進入設定選單並按下[Select] 來循環選擇不同的選項。

- 要離開這個選單並不變更任何設定，按下 [Select] 按鈕直到您看到 Exit 畫面並按下 [OK] 按鈕。

- 要變更設定，按下[Select] 按鈕來選擇您想選擇的模式，按下[OK] 按鍵來選擇並再次按下[OK] 按鍵來確定變更。

```
①                          ②                          ③
┌──────────────┐           ┌──────────────┐           ┌──────────────┐
│TEMP Alarm Setup│ Select  │Set TEMP Alarm│  Select   │Set TEMP Alarm│
│ ON     Enter>│   OK      │OFF       Set>│   OK      │ON        Set>│
└──────────────┘           └──────────────┘           └──────────────┘

                                                       ④
                                                       ┌──────────────┐
                                                       │ Exit         │  Select
                                                       │          OK> │   OK
                                                       └──────────────┘
```
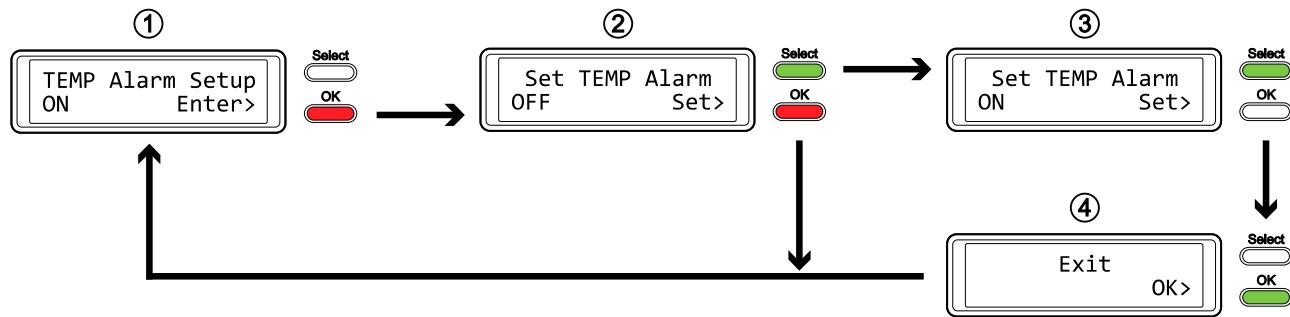
3.4.5 風扇速度設定

智慧風扇控制會自動根據內部的溫度來調整風扇速度，溫感線必須要裝上去。

- [Automatic] 根據內部溫度來控制風扇速度(40˚C 以下 = 低速、40-50˚C = 中速、高於 50˚C = 高速)。

- [HighSpeed] 風扇速度設定為高速。

- [LowSpeed] 風扇速度設定為低速。

- [OFF] 關閉風扇。若要使用這個設定則此裝置該至於涼爽且有溫控的房間。

按下[OK] 按鈕來進入設定選單並按下[Select] 來循環選擇不同的選項。

- 要離開這個選單並不變更任何設定，按下 [Select] 按鈕直到您看到 Exit 畫面並按下 [OK] 按鈕。

- 要變更設定，按下[Select] 按鈕來選擇您想選擇的模式，按下[OK] 按鍵來選擇並再次按下[OK] 按鍵來確定變更。
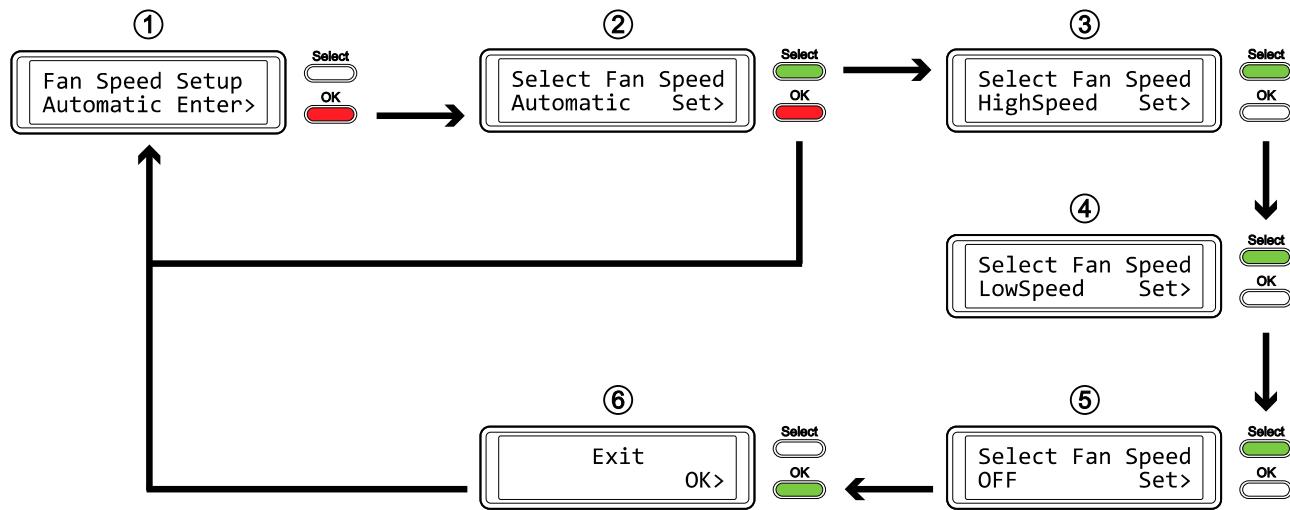
3.4.6 背光設定

LCD 顯示器的背光可以設定為啟動、關閉,或是當螢幕閒置一段時間之後自動熄滅。

- [ON] 一直亮著

- [OFF] 一直關閉

- [1min] 當螢幕閒置超過一分鐘後就將背光關閉。

- [3min] 當螢幕閒置超過三分鐘後就將背光關閉。

- [5min] 當螢幕閒置超過五分鐘後就將背光關閉。

按下[OK] 按鈕來進入設定選單並按下[Select] 來循環選擇不同的選項。

- 要離開這個選單並不變更任何設定,按下 [Select] 按鈕直到您看到 Exit 畫面並按下 [OK] 按鈕。

- 要變更設定,按下[Select] 按鈕來選擇您想選擇的模式,按下[OK] 按鍵來選擇並再次按下[OK] 按鍵來確定變更。

① Backlight Setup / ON Enter> → Select / OK → ② Set Backlight / ON Set> → Select / OK → ③ Set Backlight / OFF Set> → Select / OK ↓ ④ Set Backlight / 1min Set> → Select / OK ↓ ⑤ Set Backlight / 3min Set> → Select / OK → ⑥ Set Backlight / 5min Set> → Select / OK → ⑦ Exit / OK>
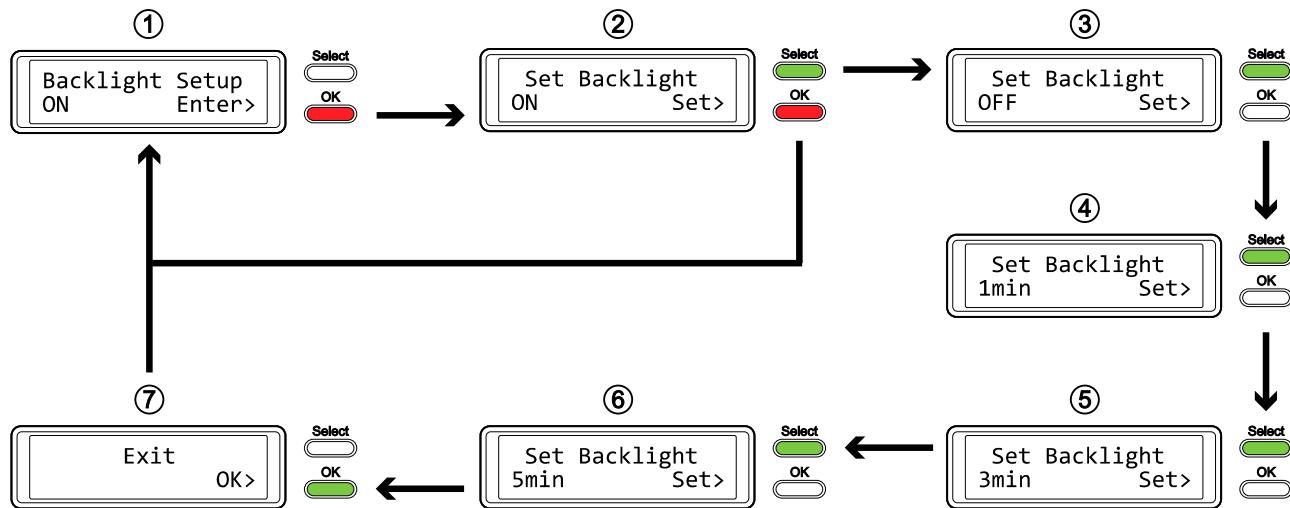
3.5 事件資訊

除了硬體與裝置組態的詳細資訊之外，LCD 顯示器也會顯示一些事件資訊。下列是一些資訊與它們的意義。

- **[HDD Error / Remaining 1xHDD]**
  當使用 RAID 0 而且有一個磁碟故障，警告聲會響起而且顯示器換提醒只有一個硬碟是正常的。請根據硬碟 LED 來辨認故障的硬碟。

- **[RAID Warning / Degraded Array]**
  當使用 RAID 1 而且有一個磁碟故障，警告聲會響起而且螢幕會顯示這個訊息。按下[OK] 按鈕來暫時關閉警告聲並使用硬碟的 LED 來辨認故障的硬碟。

- **[XX Cable / Connected]**
  顯示使用哪種連接線來連接。

- **[Cable / Disconnected]**
  當連接線被拔掉時會顯示這訊息。

- **[Rebuilding… / Hrs left xhxxmin]**
  當 RAID 1 陣列在重建的過程中會顯示，並會顯示備份大約還有多久時間才會完成。

- **[Alarm / High Temperature]**
  辨認臨界溫度 (>60˚C)。

- **[Alarm / Fan Failure]**
  指出有風扇故障或是預期之外的低轉速。

- **[Detecting Disk / Starting…]**
  在啟動系統的時候會顯示。

- **[XX / Starting …]**
  在系統啟動的時候會顯示。

- **[Check DIP Switch]**
  當試著透過 LCD 顯示器更換 RAID 模式但是 DIP 開關已經設定成另一個指定的 RAID 模式時會顯示。

- **[Modify DIP Switch]**
  當 DIP 開關要變換成不同的 RAID 模式時按下 Abort 會顯示。如果並不想變更的話，記得修改 DIP 開關並且設定回前一個模式。

- **[RAID Mode Locked]**
  當透過 LCD 顯示器來切換 RAID 模式但是 DIP 開關設定成鎖定設定值時會顯示。

4 附錄

4.1 預防措施

4.1.1 電源on/off的預防措施
強烈建議當裝置不用時將電源關閉。當重新設置裝置或是更長的一段時間不用，我們建議把裝置電源線拔掉。

4.1.2 位置與安置的預防措施
工作溫度： 5度~40度。避免將您的裝置置放於下列的地方：

- 有日曬、暖氣旁或其它會發熱來源的地方。
- 有著非常高的溫度 (超過 38°C)或者潮濕(超過 90%)的地方。
- 有著很多灰塵或沙塵的地方。
- 會震動、衝擊或是一個傾斜的地方。

4.1.3 電子與電源插頭
請小心注意下列的項目以避免損壞、火災與/或受傷：

- 當從插槽拔掉電源線時，請從接頭處拉起，絕對不要從電線拉起。
- 插拔電源線請不要用潮濕的手。
- 電源線與暖氣保持距離。
- 不要嘗試自己修理或是更改電源線。
- 如果裝置掉落或是有任何其他狀況造成的損壞，拔掉電源線。
- 先將電源線接到裝置上再把插頭插到插座上。

4.1.4 線材
只使用內附或是您的代理商建議的線材來避免故障、電擊與/或可能的干擾的風險。

4.2 常見問題

Q: 我該選擇什麼格式來格式化我的硬碟？
A: 這得根據您想怎麼使用來決定，不過一般我們建議：
- Windows XP/Vista → NTFS
- Mac OS X → HFS+ (Mac OS 延伸格式)
- 在 PC 與 Mac 間共用→ FAT32 (單檔最大限制 4GB)

Q: 在損失資料前我可以壞幾顆硬碟？
A: 在 RAID 0 狀態，任何的硬碟損壞就會造成資料流失。在 RAID 1 狀態，同時間超過一顆以上硬碟損壞的話，資料就再也不能復原。

Q: 我可以只裝一顆硬碟嗎？
A: 不行，Taurus Super-S LCM 要求一定要裝兩顆硬碟。