Taurus Super-S3 LCM

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

User Manual

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www.akitio.com

EN

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1   Introduction

1.1   Technical Specifications

1.1.1   Supported Hard Drives

- Two 3.5" SATA-I, SATA-II or SATA-III hard drives
- 80GB - 4TB per HDD
- Hard drives of identical capacities are recommended
- Supports large volumes in excess of 2TB

> **Note**
>
> *Two hard drives are required. This device is not designed for one drive alone.*

1.1.2   Power Supply

- External power supply (UL, cUL, CE, TUV approved)
- Input: AC 100-240V
- Output: DC +12V/4A

1.1.3   PC Requirements

- USB: Windows XP or above
- FireWire: Windows XP or above
- eSATA: Windows XP or above
- Your hardware device must have the correct corresponding port (e.g. USB 3.0 host controller)
- Plug & Play support for eSATA host controller

1.1.4   Mac Requirements

- USB 2.0: Mac OS 10.2 or above
- USB 3.0: Mac OS 10.7 or above
- FireWire: Mac OS 10.2 or above
- eSATA: Mac OS 10.4 or above
- Your hardware device must have the correct corresponding port (e.g. USB 3.0 host controller)
- Plug & Play support for eSATA host controller

> **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. Windows 7 or Mac OS 10.4 and above).*

1.2   About this Manual

Firmware, images and descriptions can slightly vary between this manual and the actual product you have. Functions and features may change depending on the firmware version. To download the latest manual, go to http://www.akitio.com/support/user-manuals.

1.3   Trademarks

- Microsoft, Windows XP and Windows 7 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.

1.4 Detailed View

1.4.1 Front View
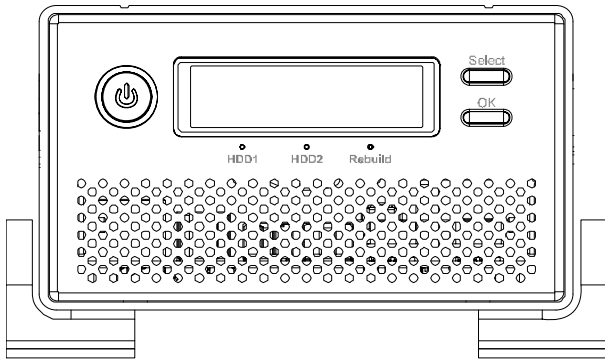
Power ON/OFF

To turn on the power, press and hold the power button for 1 sec. and then release it.

To turn off the power, press and hold the power button for 3 sec. and then release it.

Wait at least 5 seconds after turning off the power, before turning it back on.

LED/Button	Description
⏻	• Blue = Power on
HDD1/2	• Green = Data access (read/write) • Orange = Error or empty drive bay
Rebuild	• Orange = Rebuilding data
Select	• Select setup menu or mode
OK	• Confirm current setting or enter setup menu

▌ Important

Before turning on the power, make sure the interface cable is connected and the computer is running, otherwise the alarm goes off and the message [HDD Error or No Interface] is displayed. However, it is normal for this message to appear for a few seconds when the unit is switched on.

1.4.2 Rear View
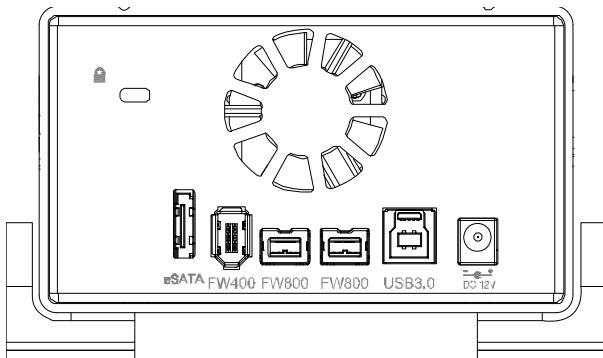
Icon/Label	Description
🔒	• Security lock slot
eSATA	• External SATA port
FW400	• FireWire 400 port
FW800	• FireWire 800 port
USB 3.0	• USB 3.0 SuperSpeed port
DC 12V	• Power receptacle

1.5 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 USB 3.0 and eSATA.

1.5.1 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

1.5.2 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

1.5.3 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. Connect the device to your computer and turn on the power.

3. Enter the setup menu and set the RAID mode. For details, see RAID Mode Setup.

4. Confirm the RAID mode when prompted.

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

6. Done.

Note

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


Important

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. Windows 7 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.
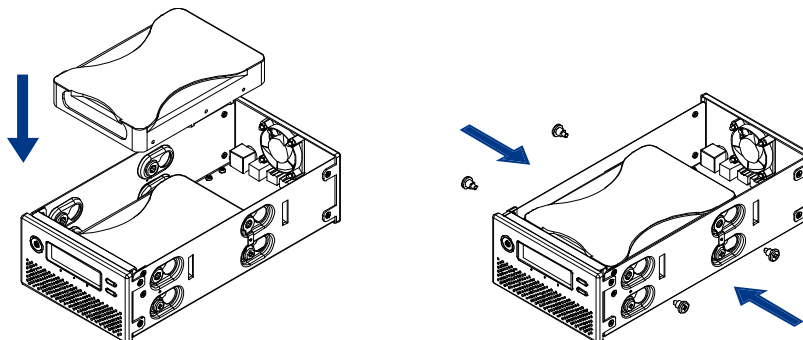
1. Remove the four screws on the bottom of the case, push the inner chassis out and remove the outer enclosure. The aluminum stand does not have to be removed for the assembly.
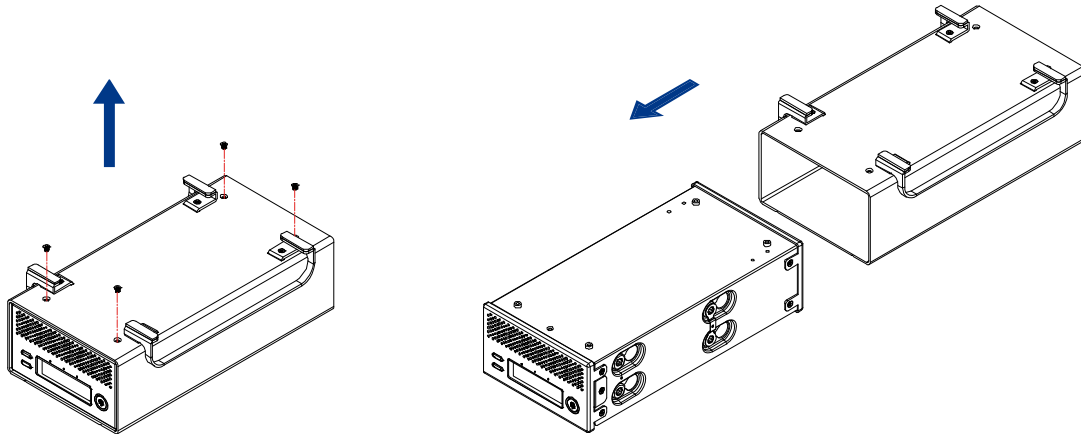
2. Install the first hard drive and mount it with two screws on each side.
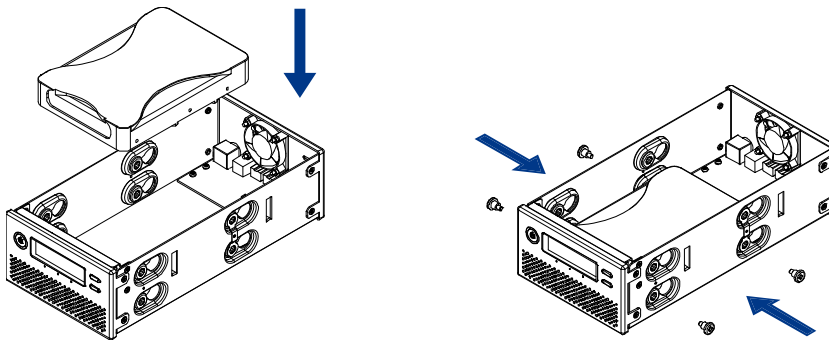
3. Install the second hard drive and mount it with two screws on each side.

4. 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.

    The connector labeled J1 is HDD1 and the connector labeled J2 is HDD2.

5. Slide the inner chassis back into the outer enclosure and fasten the four screws to finish the assembly.
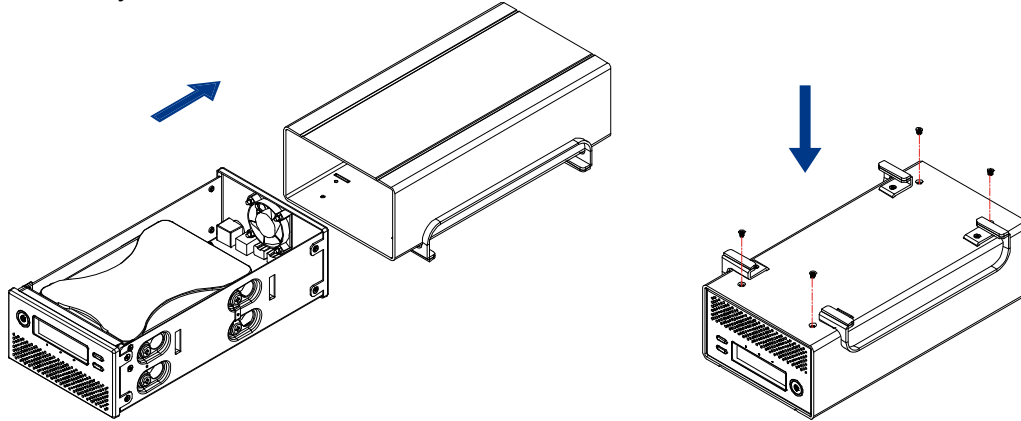
6. Connect the device to the computer and turn on the power.
7. Enter the setup menu and set the RAID mode. For details, see RAID Mode Setup.
8. Use the disk management tool (PC) or disk utility (Mac) to initialize the drive, create a new partition and format it.
9. Done! Your drive is now ready to use.

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 warning **[RAID Warning / Degraded Array]** is displayed. When the RAID mode is set to RAID 1, the data can still be accessed but we strongly recommend replacing the faulty drive as soon as possible to assure continued proper backup and data safety.

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

1. Check the HDD Information to determine the defective drive (e.g. HDD 1: no disk).

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

3. Open the enclosure and replace the faulty hard drive (J1 = HDD1, J2 = HDD2).

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 the 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 restarting, format the drives again.

| **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 turning on the power, make sure the interface cable is connected and the computer is running, otherwise the alarm goes off and the message **[HDD Error or No Interface]** is displayed. However, it is normal for this message to appear for a few seconds when the unit is switched on.

- For the safe removal of your drive and to assure 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. Windows 7 or Mac OS 10.4 and above) or the >2TB Volume Mode should be disabled.

- 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.
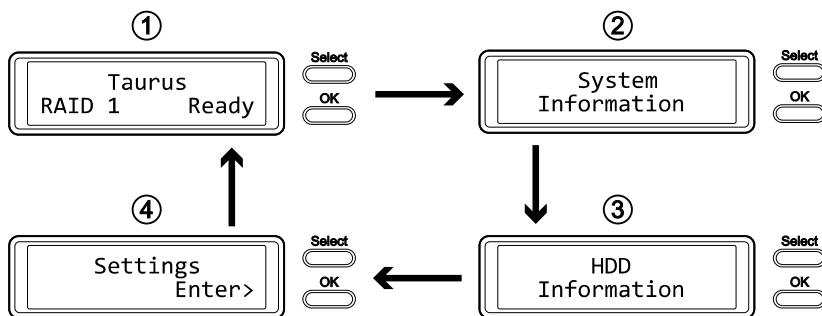
3.2 System Information

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-S3 LCM.

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

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

6. Displays how the RAID mode is set (LCM = LCD display) and the total storage capacity.
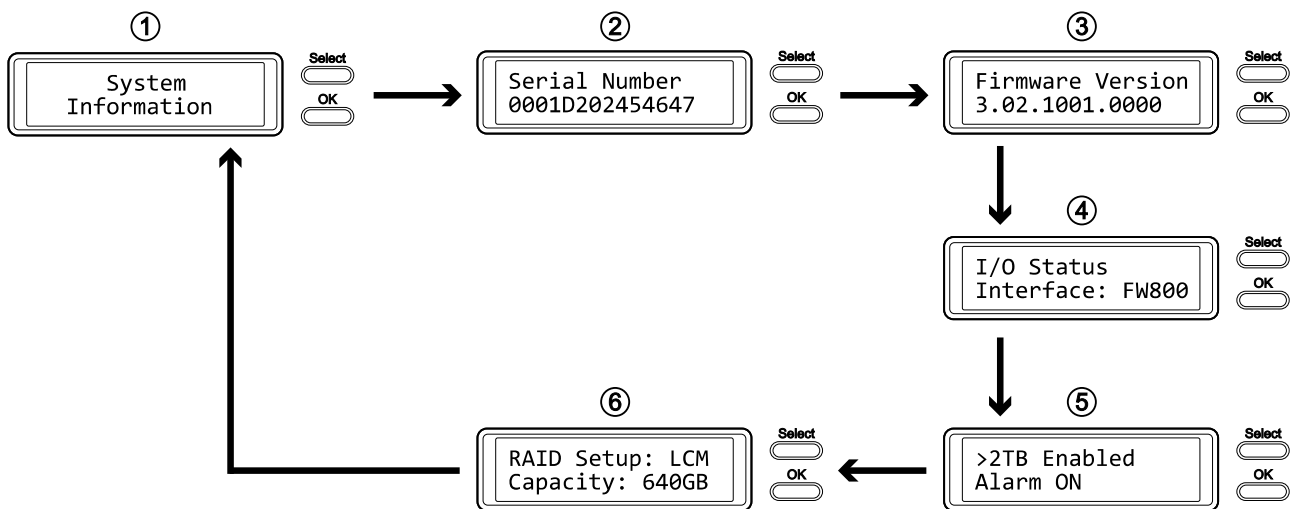
3.3 HDD Information

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.
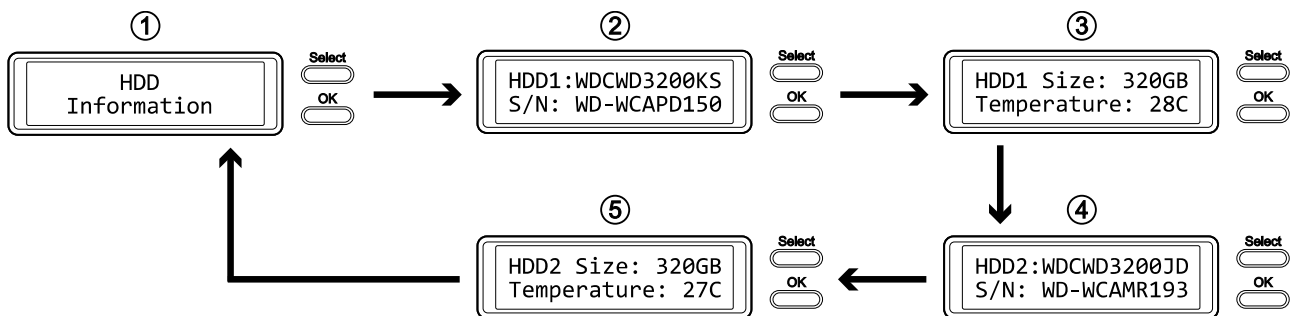
> **Note**
>
> *To determine which is HDD1 and which is HDD2, check the serial number of the drive or check the label on the circuit board beside the SATA connector. HDD1 is labeled J1 and HDD2 is labeled J2.*

> **Note**
>
> *If a drive in a RAID array fails because it is defective, the HDD information is no longer displayed. Instead, it will show "HDD 1: no disk" and the rest of the information is 0 or blank.*

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 alarm sound.

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

5. Press OK to exit the settings menu and return to the main menu.
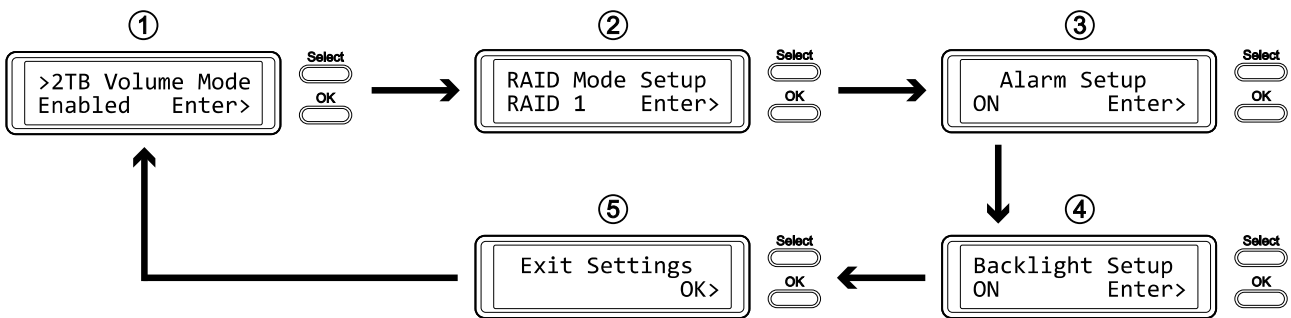
3.4.1 >2TB Volume Mode

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. Windows 7 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 cannot 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.
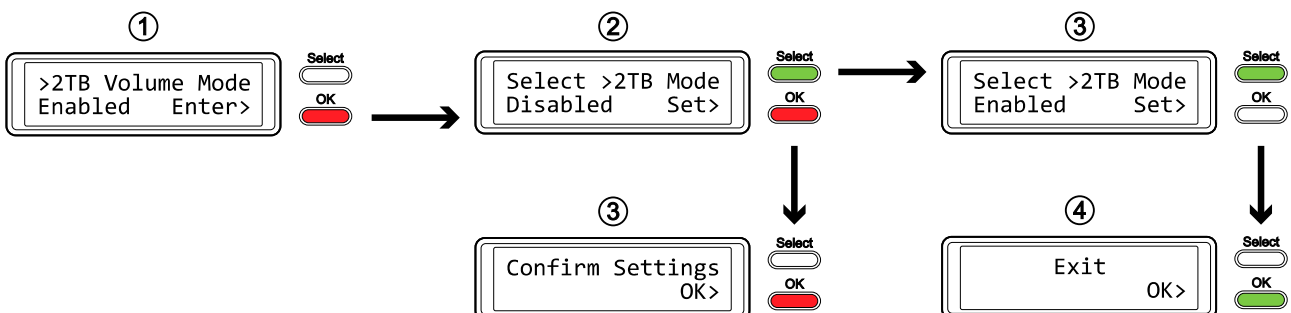
3.4.2   RAID Mode Setup

The RAID mode should be set after installing the hard drives and starting up the system for the first time.

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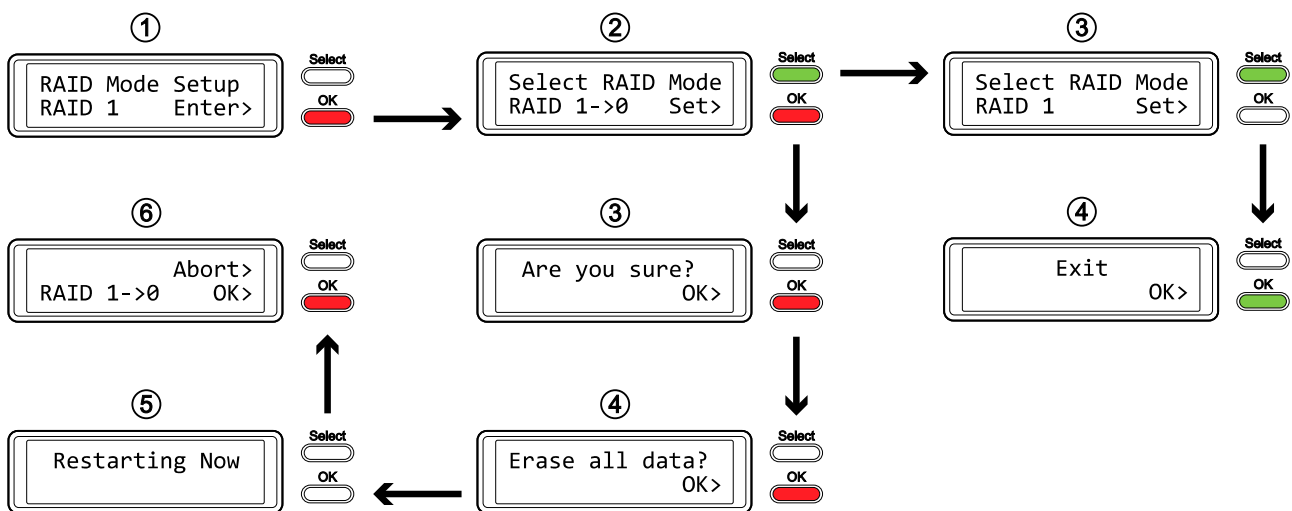
> **Note**
>
> *Changing the RAID mode requires you to re-format the drives. Make sure to backup all existing data first!*

3.4.3 Alarm Setup

The alarm 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.
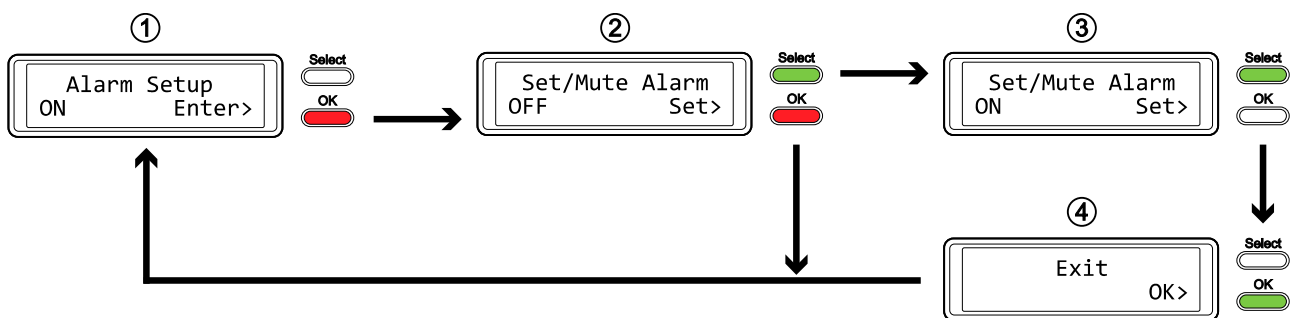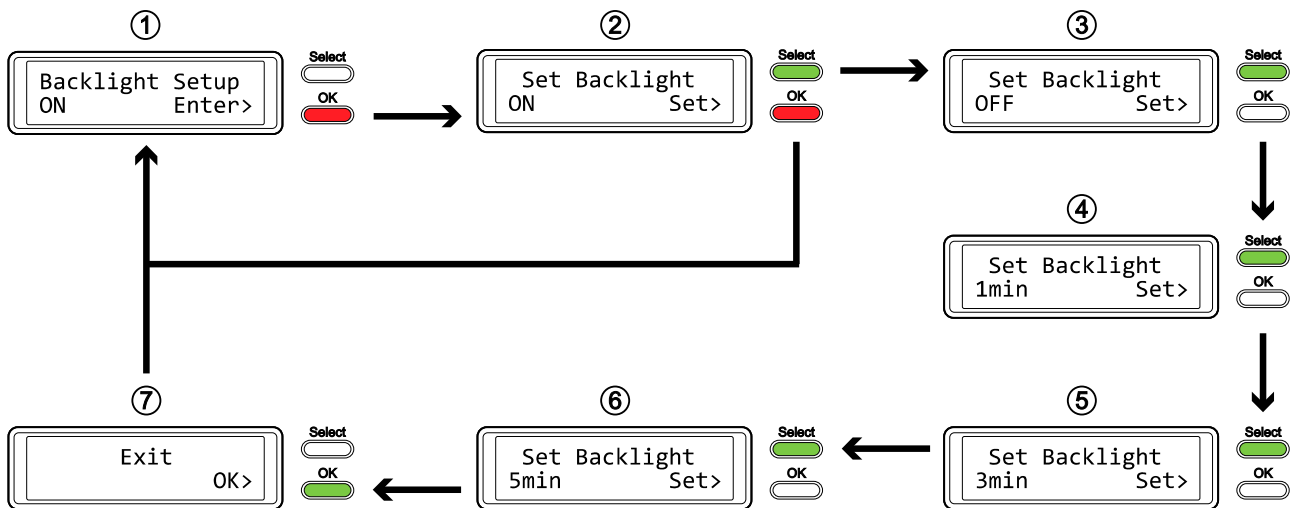
3.4.4   Backlight Setup

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.

①
```
Backlight Setup
ON          Enter>
```

②
```
Set Backlight
ON          Set>
```

③
```
Set Backlight
OFF         Set>
```

④
```
Set Backlight
1min        Set>
```

⑤
```
Set Backlight
3min        Set>
```

⑥
```
Set Backlight
5min        Set>
```

⑦
```
Exit
            OK>
```

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 or No Interface]**
  The alarm goes off and this message shows when (A) only one drive (or none) is installed and (B) when the power is turned on before the interface cable is connected to the computer and before the computer is turned on.

  Press the [OK] button to temporarily mute the alarm and make sure the device is connected to the computer.

  Note: It is normal for this message to appear for a few seconds when the unit is switched on.

- **[RAID Warning / Degraded Array]**
  When 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 then use the HDD Information 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.

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

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

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 depends on how you want to use the drive but in general, we recommend following:
- Windows → 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 cannot be recovered anymore.

Q: Can I install only one hard drive or set up the two drives as two independent volumes?
A: No, the Taurus Super-S3 LCM requires two hard drives and they are combined in a RAID array.