

RAIDON

SafeTANK
GR5640-SB3
User Manual

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Introduction

Thanks for purchasing RAIDON product. This User Manual will introduce you the GR5640-SB3 storage product. Before using your GR5640-SB3, please read it thoroughly. Although all information contented in this User manual had already been carefully verified before publishing, however, the actual product and its specification will be based upon the time of delivery from RAIDON. Any update to the product or its relevant information may be listed on www.raidon.com.tw. Product is subjected to change without notice.

If you have any question regarding this product, or you would like to know the latest product information, or updates, please contact your local supplier or visit to www.raidon.com.tw for assistance.

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1. Package Contents and Product Views

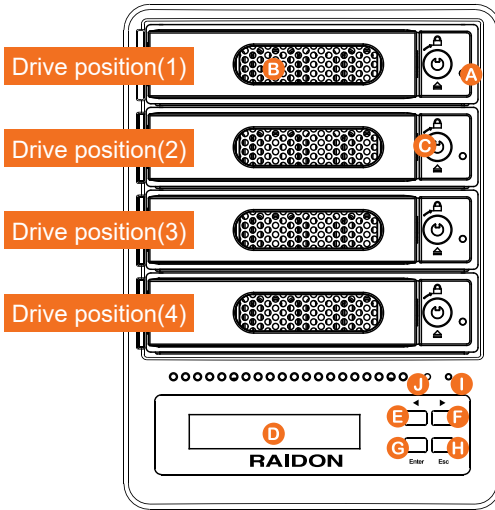
Open the package and you shall find the following parts :

GR5640-SB3
GR5640-SB3 x 1 (with removable drive tray enclosed x 4)
USB 3.0 Cable x 1
eSATA Cable x 1
AC Power Cable x 1
Quick Installation Guide x 1
Screws & Keys

- Please check the product and accessories for any defect or missing parts. If you have any questions, please contact your product supplier.
- Please visit the official website - Download page (<http://www.raidon.com.tw/RAIDON2016/download.php>) to download drivers and other related resources.

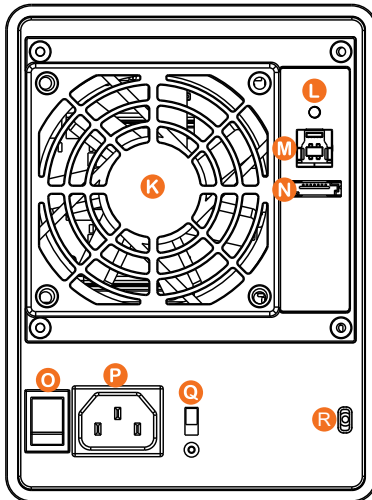
Product View

Front View



- A. HDD access light
- B. HDD enclosure handle
- C. HDD tray key lock
- D. LCM display
- E. System status light
- F. Power status light
- G. UP button
- H. DOWN button
- I. ENTER button
- J. ESC button

Rear View



- K. Fan
- L. Mute button
- M. USB3.0 interface
- N. eSATA interface
- O. Power switch
- P. Power socket
- Q. Fan speed switch
- R. Anti-theft lock

LED Indicators :

Constant	Power LED	Larm LED	HDD LED		Buzzer	
			RAID	JBOD	RAID	JBOD
No HDD	Blue light always on	---	---		---	
HDD Failed	Blue light always on	---	Red light always on	---	YES	---
Access	Blue light always on	---	Blue light flashing		---	
Disk Idle	Blue light always on	---	Blue light always on		---	
Rebuilding - Source	Blue light always on	---	Blue light flashing	---	---	
Rebuilding - Target	Blue light always on	---	Red light flashing	---	---	
Fan Failed	Blue light always on	Red light always on	Blue light always on		YES	
Over Temp	Blue light always on	Red light always on	Blue light always on		YES	

2. Operating Information

Operating Temperature : 0 ~ 40 °C (32 ~ 104 °F)

Storage Temperature : -20 ~ 47 °C (-4 ~ 116 °F)

Relative humidity : 5% to 95% noncondensing

Line Voltage : 100~240V AC

3. Hardware Requirements and Precautions

1. Only one interface connection may be used at once per computer system.
2. RAID volume formation utilizes the capacity of whichever hard drive has the smallest and then multiply that capacity by three for RAID 5, four for RAID 0, to form a large volume, therefore, it is recommended to only install hard drives of the same brand and specification for all drive position prior to use. Moreover, when you need to replace with a new hard drive, please be sure to purchase one with the same specification, capacity and brand. If these conditions can't be met, select one that's at least 20 GB greater in capacity.
3. The actual storage capacity of GR5640-SB3 recognized by the system may differ from the total capacity stated on the hard drives once the drives have been formatted.
4. When connected to the computer system, it's prohibited to remove, insert or swap the hard drive while data transfer is being performed.
5. It's prohibited to change the positioning of the drives once the initial installation has been completed as the changes made to the drive positions may destroy the RAID formation.
6. If you discover that hard drive failure is taking place, go to Section 6 "Replacement of Malfunctioning Drive and Data Rebuild Instructions" and follow the steps accordingly.
7. Whenever turning off or unplugging the GR5640-SB3 from your computer system becomes necessary, always remember to safely remove it from your operating system first.
8. In RAID 5 mode, the system allows one single hard drive failure. If multiple drive failures occur at once, it's likely that all data stored in the system have been destroyed or lost. In RAID 0

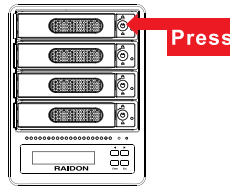
mode, if one hard drive failure occurs, then all data maybe destroyed or lost. If this happens, we recommend you to consult with a professional hard drive data recovery specialist to see if your data may be recoverable.

9. When the fan speed switch is set to "Auto", the fan will run at full speed to accelerate the heat dissipation if the temperature inside the machine exceeds 50 ($\pm 10\%$)°C.
10. It is highly recommended for users to back up important data contained within the GR5640-SB3 unit on a regular basis or whenever the user feels necessary to a remote or a separate storage device. RAIDON will not be responsible for any lost of data caused during the use of the unit or the recovery of the data lost.

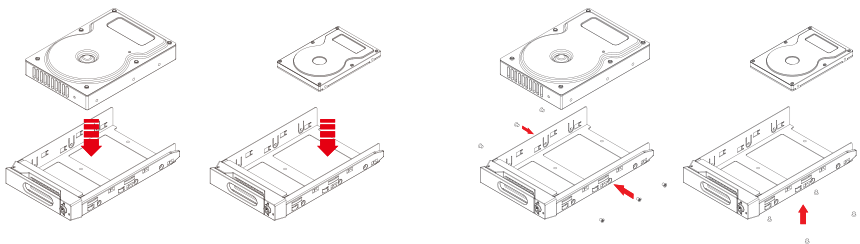
4. Hardware Installation Procedure

Please follow the instructions below to complete the hardware installation.

- Step 1 Open the package and take out the product making sure that all the enclosed contents are not damaged or missing. Should you find damages or missing contents, please contact your supplier immediately.
- Step 2 Place the system on a stable surface. Ensure that it is well ventilated without blockage to the vent and kept away from areas near water and damage prone areas.
- Step 3 Use the key included in the accessory kit and inserted into the key access opening to eject the removable drive tray latch and extract the removable drive tray.



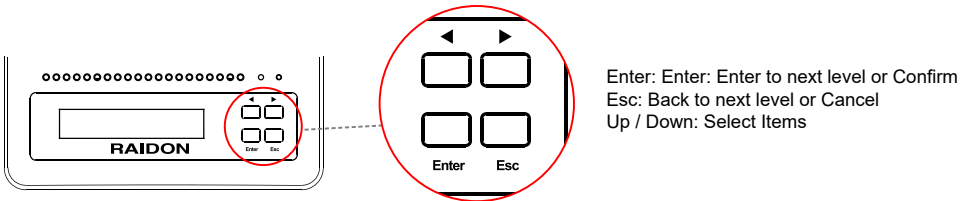
- Step 4 Mount your hard drives onto the removable drive tray and secure it with the screws included in the accessory kit to avoid any damage to the hard drive due to accidental movements.



- Step 5 When the hard drive installation has been completed, insert the hard drive tray into the system horizontally and secure the latch into place.
- Step 6 Connect the AC power cable to the GR5640-SB3, and then plug the AC power to the wall socket. Boot-up the unit.
- Step 7 Set the storage mode using the LCD and buttons on the front (please refer to section 5 for front panel and LCD information).
- Step 8 Connect the cable to the PC and the GR5640-SB3 port.
- Step 9 After boot-up, your operating system will automatically detect the storage capacity of your hard drives. Please follow the operating system instructions to configure and format your drives. The formatted drives can be configured for the RAID setup.

5. Description of Front Panel Operation and LCD Information

Front Panel Operation:



Users can set the RAID mode using the LCD and buttons on the front. The default is JBOD mode. Using “Quick Setup” function, users can change the RAID mode to RAID 0 or RAID 5 quickly.

Please refer to LCD Information as below for other setting:

Level 0	Level 1	Level 2	Level 3	Level 4		
External 4BAY HARDWARE RAID	Quick Setup	Create One RAID	RAID 0/ RAID 5	Select Disk		
		Delete All RAID				
	Disk Manager	Identify Disk		Disk 1	Check Disk LED	
				Disk 2	Check Disk LED	
				Disk 3	Check Disk LED	
				Disk 4	Check Disk LED	
		Show Disk Info	< Disk Info >			
	RAID Manager	Identify RAID	Select RAID			
		Create RAID	RAID 0 / RAID 5	Select Disk		
		Delete RAID	Select RAID			
		RAID Info	— —			
		Change RAID Pwd	< Password > for RAID Setup			
		Rebuilding Priority	Highest/High/Medium/Low/Lowest			
	System Manager	System Info	Firmware Version			
		Changhe Password	< Password > for System Info			
		Logout From Menu	< Y or N >			
		Alarm Control	Mute the Buzzer			
		Hardware Monitor	Voltage Monitor	< 3.3V / 5V / 12V >		
			Temp. Monitor	< Temp. >		
	Fan Monitor		< Fan Speed / Fan Level >			

6. Replacement of Malfunctioning Drive and Data Rebuild Instructions

When a front hard drive indicator has lit up red and the audio alarm sounds, this could mean the indicated hard drive may be malfunctioning. If this occurs, you may press the mute button at the rear of the system to shut off the audio alarm and power off the system immediately if in the allowed operational state, and then re-power on the system to double check and see if in fact the indicated hard drive has malfunctioned. If the problem persists, please turn off the system and follow the directions below :

1. Remove the drive tray containing the malfunctioned hard drive and disassemble the hard drive from drive tray.
2. Mount the new hard drive onto the tray and insert it back to the empty drive position of the GR5640-SB3, then push the latch into place making sure it is secured and locked.
3. In RAID 5 mode, when you turn the system on, the hard drive status indicator of the replacement drive will interchangeably blink red and purple to inform that the data is being rebuilt to the replacement drive. During data rebuild, you may operate the GR5640-SB3 as normal. When the indicator stops, the data rebuild process has been completed.

7. System Temperature Overheat and Fan Failure Management

If the alarm indicator has lit up red and the audio alarm sounds, this could mean that either a system fan has stopped operating entirely or the system temperature has exceeded over the default temperature of 55° C. When this occurs, you may press the mute button at the rear of the system to shut off the audio alarm and power off the system immediately if in the allowed operational state to let the system cool. Check and see if the overall operation environment is well ventilated and make sure there are no blockages to the enclosed fan and then re-power on the system to continue use. If the problem persists, please turn off the system and contact your supplier or the RAIDON tech support for further assistance.

8. Frequently Asked Questions

Q1. Which drive format should I choose to format the hard drives in the GR5640-SB3?

A: It depends on the computer system you most often use. See the below suggestions:

1. Use NTFS format for Windows 2000/XP/Vista/7/8/10 system
2. Use HFS+ (Mac OS Extended) format for a Mac OS X system
3. Choose FAT32 format if you'll use the GR5640 in both Windows and Mac environments (the maximum size of one single file may not exceed 4 GB).

Q2. Why can't my GR5640-SB3 reach the transfer performance speed of 200 MB/s via eSATA interface as stated on your website?

- A: 1. Please first check if your PCI-E SATA host adapter would only support PCI-E (1X). This type of host adapters cannot reach the transfer performance speed beyond 135MB/s.
2. The GR5640-SB3 will need to be set to the RAID 0 mode also.

關於這份手冊

感謝您使用 RAIDON 的產品。本手冊將介紹 產品。在您開始使用產品前，建議您先閱讀過本手冊。手冊裡的資訊在出版前雖已被詳細確認，實際產品規格仍將以出貨時為準；任何產品規格或相關資訊更新請您直接到 www.raidon.com.tw 網站查詢，本公司將不另行通知。若您想獲得 RAIDON 最新產品訊息、使用手冊、韌體，或對 RAIDON 產品有任何疑問，請您聯絡當地供應商或到 www.raidon.com.tw 取得相關訊息。

本手冊相關產品內容歸銳銜科技股份有限公司版權所有

1. 產品外觀及包裝內容

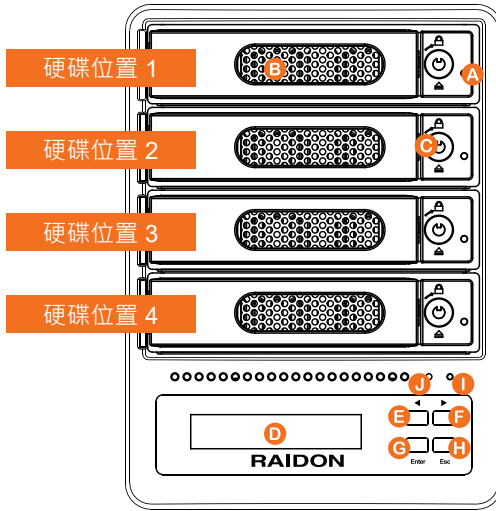
打開包裝外盒後，包裝內容應包含下列組件：

GR5640-SB3
GR5640-SB3 產品本體 X1(內含抽取盒 x4)
USB3.0 連接線 x1
eSATA 連接線 x1
AC 電源線 x1
螺絲及鑰匙
快速安裝導引 x 1

- 請確認相關配件與產品本身是否有受損或配件缺少，若有任何疑問請與本產品供應商聯絡。
- 請前往官網 - 產品資料下載頁面 (<http://www.raidon.com.tw/RAIDON2016/download.php>) 下載驅動程式以及其餘相關資源。

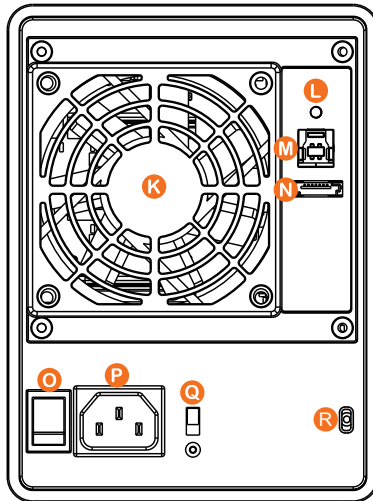
正面與背面示意圖

正面圖



- A. 硬碟讀取燈
- B. 硬碟抽取盒把手
- C. 硬碟卡榫按鍵
- D. LCM 顯示幕
- E. 系統指示燈
- F. 電源指示燈
- G. UP 按鍵
- H. DOWN 按鍵
- I. ENTER 按鍵
- J. ESC 按鍵

背面圖



- K. 風扇
- L. 靜音開關
- M. USB3.0 連接埠
- N. eSATA 連接埠
- O. 電源開關
- P. 電源插座
- Q. 風扇轉速切換按鈕
- R. 防竊鎖孔

燈號一覽表：

狀態	電源指示燈	系統警示燈	硬碟狀態顯示燈		蜂鳴器	
			RAID	JBOD	RAID	JBOD
無硬碟	藍燈恆亮	— —	— —		— —	
硬碟故障	藍燈恆亮	— —	紅燈恆亮	— —	YES	— —
資料存取	藍燈恆亮	— —	藍燈閃爍		— —	
硬碟閒置	藍燈恆亮	— —	藍燈恆亮		— —	
資料重建 - 來源碟	藍燈恆亮	— —	藍燈閃爍	— —	— —	
資料重建 - 資料碟	藍燈恆亮	— —	紫燈閃爍	— —	— —	
風扇故障	藍燈恆亮	紅燈恆亮	藍燈恆亮		YES	
過熱	藍燈恆亮	紅燈恆亮	藍燈恆亮		YES	

2. 環境需求

工作溫度：0 ~ 40 °C (32 ~ 104 °F)

儲存溫度：-20 ~ 47 °C (-4 ~ 116 °F)

相對濕度：5% 至 95% 非凝滯狀態

工作電壓：100~240V AC

3. 硬碟需求與注意事項

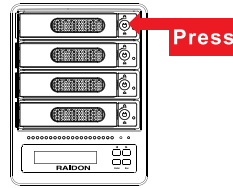
1. 本系統同一時間只可透過一組介面與一台電腦執行資料傳輸。
2. RAID 5 的容量形成是將硬碟中最小容量乘上三倍後，RAID 0 乘上四倍，之後會被視為一個大儲存容量；因此，用本系統前必須每顆硬碟裝置槽都已完成硬碟安裝，並建議全部使用相同品牌與同規格之全新硬碟。同時，如果需要更換新的硬碟時，也請您務必購買規格、容量、廠牌相同的硬碟，若您無法購買到符合上述條件的硬碟時，請選購容量大於另一硬碟最少 20GB。
3. 硬碟格式化後，由電腦主機作業系統所辨識 GR5640-SB3 的實際容量會與硬碟廠所標示的容量加總後，有所差異。
4. 當系統運作時，請勿任意移除任何一顆硬碟，以免導致資料遺失。
5. 完成系統初始化安裝後，在使用上請勿任意變更硬碟位置；此動作將可能導致系統無法形成 RAID。
6. 當您發現硬碟故障時，請參考章節 6" 硬碟故障排除與硬碟更換步驟說明"，並依照程序進行故障硬碟的更換。
7. 當您需要關閉或移除 GR5640-SB3 時，務必透過您所操作的作業系統中執行硬碟安全移除後，方可進行電源關閉動作。
8. 在 RAID 5 模式下儲存系統僅容許單顆硬碟故障。因此，當您發現二顆以上的硬碟顯示故障時，您先前以儲存的資料可能已損毀或遺失；在 RAID 0 模式下，當您發現一顆以上的硬碟顯示故障時，您先前以儲存的資料可能已損毀或遺失。建議您可尋找專業硬碟資料救援服務，試著將您損毀或遺失的資料重新取回。

9. 當風扇轉速切換按鈕設定在「Auto」時，若系統溫度超過 $50 (\pm 10\%) ^\circ\text{C}$ 時，機器風扇會全速運轉，加速機器內部散熱。
10. 強烈建議除了使用 GR5640-SB3 的資料儲存功能外，請針對重要資料備份到另一個儲存裝置或遠端備份，雙重備份您重要的資料。若您儲存在 GR5640-SB3 的資料損毀或遺失，RAIDON 將不負任何的責任。

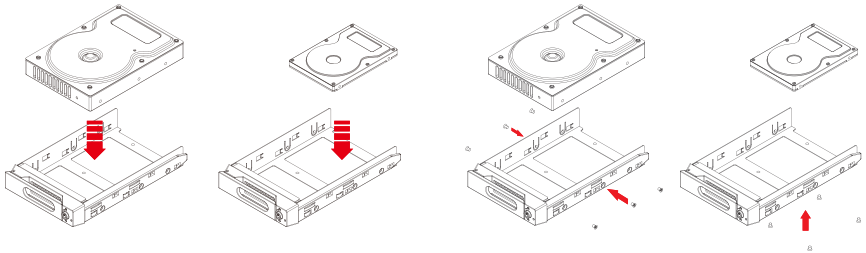
4. 硬體安裝

請參照以下步驟完成硬體安裝

- 步驟 1 拆開外包装並取出產品主體。(請確認相關配件與產品本身是否有受損或是缺少配件，若有任何疑問，請與您的經銷商或業務人員聯絡)
- 步驟 2 將系統擺放於穩固平台，並確認散熱風扇口沒有被其它物體擋住，系統四周有適當的散熱空間。(擺放環境請避免接近潮濕或其它亦對產品造成損傷的環境)
- 步驟 3 請按壓抽取盒面板上的按鈕，按壓後抽取盒門將會輕彈開啟，即可將抽取盒取出。



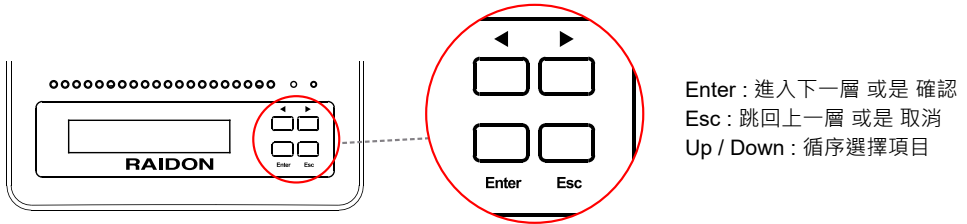
- 步驟 4 將硬碟安裝到抽取盒上，並以零件包內附的螺絲加以固定，以避免不必要的移動對硬碟造成傷害。



- 步驟 5 硬碟安裝完成後，請將抽取盒平移放入主機內，並關上把手。
- 步驟 6 將 AC Power 電源線與 GR5640-SB3 連接，再將 AC Power 電源線與電源插座連接，執行開機。
- 步驟 7 透過前方的 LCD 與按鍵來設定您所需求的儲存模式。(請參考"前面板操作及 LCD 訊息說明")
- 步驟 8 將附件中的連接線分別接到 PC 與 GR5640-SB3 的相關連接埠。
- 步驟 9 開機後，您的作業系統將會自動辨識到 RAID 容量；待辨識成功後，請依據您所需的儲存格式，將系統內的硬碟依照作業系統的指示完成格式化。待格式化完成後，便可直接執行 RAID 系統。

5. 前面板操做及 LCD 訊息說明

前面板操作：



使用者可經由面板進行 RAID 操作。GR5640-SB3 預設值為 JBOD。可進入 Quick Setup 快速設定成 RAID 0 或是 RAID 5 模式使用

如需進行其他設定，則可參考下列 LCD 說明進行操作：

Level 0	Level 1	Level 2	Level 3	Level 4	
External 4BAY HARDWARE RAID	Quick Setup	Create One RAID	RAID 0 / RAID 5	Select Disk	
		Delete All RAID			
	Disk Manager	Identify Disk		Disk 1	Check Disk LED
				Disk 2	Check Disk LED
				Disk 3	Check Disk LED
				Disk 4	Check Disk LED
		Show Disk Info	< Disk Info >		
	RAID Manager	Identify RAID	Select RAID		
		Create RAID	RAID 0 / RAID 5	Select Disk	
		Delete RAID	Select RAID		
		RAID Info	— —		
		Change RAID Pwd	< Password > for RAID Setup		
		Rebuilding Priority	Highest/High/Medium/Low/Lowest		
		Standby Timer	< 99999min >		
	System Manager	System Info	Firmware Version		
		Logout From Menu	< Y or N >		
		Alarm Control	Mute the Buzzer		
		Hardware Monitor	Voltage Monitor	< 3.3V / 5V / 12V >	
			Temp. Monitor	< Temp. >	
	Fan Monitor		< Fan Speed / Fan Level >		

6. 故障硬碟更換步驟及資料重建功能說明

1. 取出故障硬碟所存放的抽取盒，再將硬碟從抽取盒上拆解下來。
2. 將新的硬碟安裝至抽取盒後，再將新硬碟的抽取盒插回 GR5640-SB3 空的硬碟槽位置，並將抽取盒門鎖上，確認硬碟已完全插入。
3. RAID 5 模式下，將電源打開時，您將會看到所更換的新硬碟抽取盒旁的指示燈號呈現閃爍紅藍燈的狀態，表示更換上的硬碟資料正在進行重建；此時，您仍可正常使用 GR5640-SB3 工作；待資料重建指示燈號停止，即代表資料重建完成。RAID 0 模式下，因單顆硬碟故障會造成所有資料損毀，更換新硬碟後，請重新將系統內的硬碟格式化。

7. 系統過熱與風扇故障狀況排除

GR5640-SB3 內建故障警示功能，若 GR5640-SB3 內部溫度超過 55°C，或 GR5640-SB3 風扇發生故障時，內建的蜂鳴器會發出警告聲響，前面板的紅色警示燈號也會亮起；此時您可選按系統背面的靜音按鈕，先將警示聲關閉，並在允許的狀況下關閉 GR5640-SB3 電源讓系統降溫；同時，請先確認積體擺放環境是否通風良好，沒有任何物體擋住風扇孔，一併檢查 GR5640-SB3 的風扇是否停止運轉；待上述檢查確認後，再將電源開啟繼續使用本系統。若問題還是無法獲得解決，請與供應商或 RAIDON 聯絡，以便取得進一步的支援。

8. 常見問題

Q1. 我應該選擇何種模式來格式化 GR5640-SB3 產品內的硬碟？

A：這將取決於您平常所使用的電腦系統，我們有以下建議：

1. Windows 2000 / XP / Vista / 7 / 8 / 10 使用 NTFS
2. Mac OS X 使用 HFS+ (Mac OS Extended)
3. 如必須同時使用於 PC 或 Mac，請使用 FAT32 (單一檔案的最大限制是 4GB)

Q2. 為什麼我所購買的 GR5640-SB3 透過 eSATA 介面無法達到 200MB/s 以上的傳輸速度？

A：1. 請先檢查您所購買的 PCI-E SATA 擴充卡是否僅支援 PCI-E (1X)，此類擴充卡無法達到 135MB/s 以上的傳輸速度。

2. GR5640-SB3 的儲存模式必須為 RAID 0 或 RAID 5 模式。

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