SR3610 Series

User's Guide

Date:Nov ,24,2005

Table of Content

Cautions

Carefully read the manual before using and secure the manual for future use.

Do not place any liquid types around the system

Use three wires electrical socket or Extension cord for the subsystem.

Avoid sharing extension sockets withelectronic products such as Blow dryer, microwave, or air Conditioner, etc.

Avoid area with high heat and moistune.

Avoid area with eletro magnetic.

Chapter 1
Product Introduction

SOHORAID SR3610 is able to simultaneously support SATA 1 and USB 2.0 transfer interfaces while providing users an affordable and safe external RAID subsystem.

Regardless for usage at home or office, because it is equipped to support RAID 0 function, it is able to combine the storage space of 2 hard-disks to offer the fastest transfer efficiency at the same time，but it does not provide any data redundancy．Beside it also supports RAID 1 function, through mirroring operation, it is able to ensure safety and reliability of data storage.
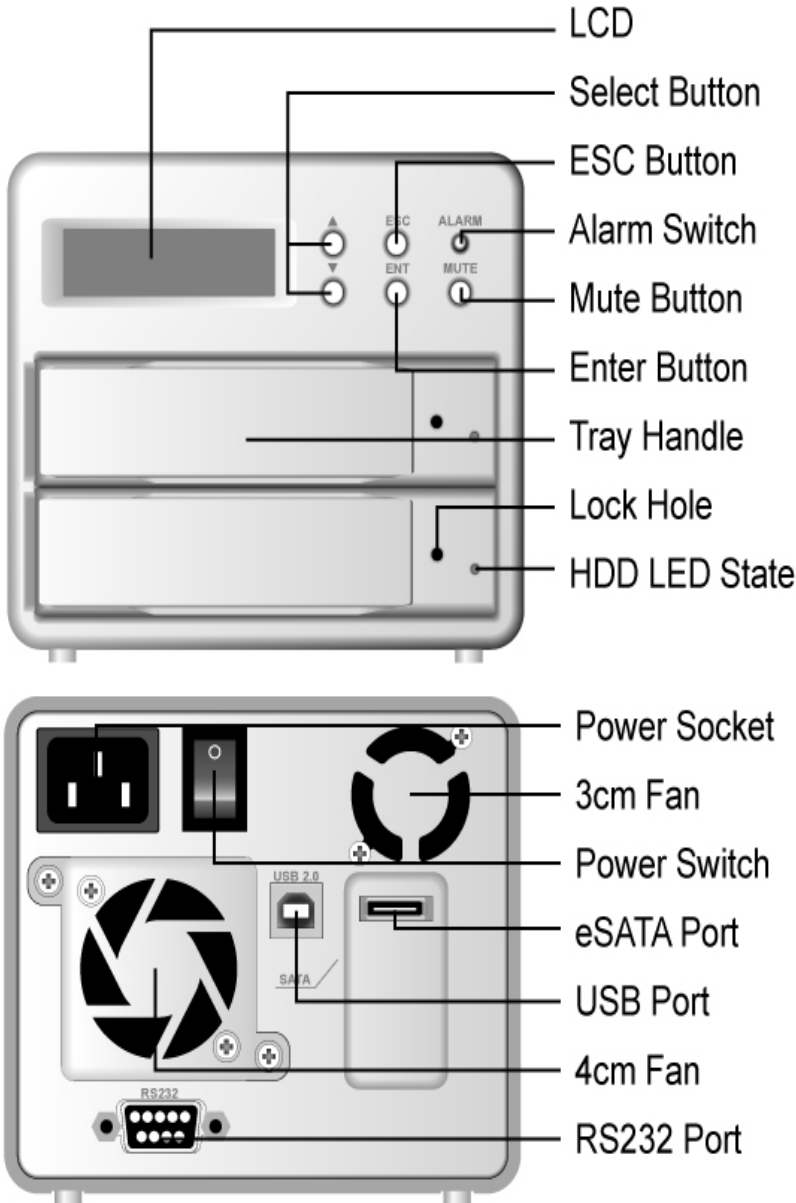
1-1 Functions and Features

SOHORAID SR3610 is a RAID system designed specifically for the user. It is your most cost effective choice; you can expand storage at your discretion while ensuring the safety and integrity of stored data.

· Plug & Play Removable Tray Module Design

The design of swappable tray allows instant access to device after each swap, so hard-disk could be removed or installed at any give time which means easy maintenance.

· Independent operation system design

It can be identified as a separate hard-disk, there is no need to install driver, instant access when device is turn on.

· No required driver

No need to install additional driver yet is compatible and operational when using Windows/Mac/Linux operating system. i.e. Windows 2000/XP/Server2003/Mac 10 and above/Linux Core 2.4 and above

· Supports Hot swap function

There is not necessary need to turn off the system power when changing failed hard-disk online.

· Simple and easy operation with the use of LCD control panel

Using buttons on the right of LCD, it is able to set up RAID mode and schedule backup. The status of cooling fans and temperature is also displayed on LCD for easy management

· Auto rebuilding data online

After change of hard-disk, system automatically performs reconstruction of data, no need to set up any command.

· Automatically schedules backups to prevent potential virus attack.

User is able to program, within tolerable range, by press of button to set up preferred days of automatic schedule backup, periodic backup system data, an to prevent system failure from virus attack.

・GUI Monitoring Software

It offers Window-based RAIDGuide GUI software, get connected to the system through RS232 port for monitoring RAID system status at client's end. In case of failures, you could be notified with e-mail to ensure total protection.

・Compatibility with SATA /USB 2.0 transfer interface

Supporting a variety of transfer interface while increasing transfer rate up to 56 MB/sec (USB 2.0) ~150 MB/sec (SATA), effectively improve system efficiency.

1-2 Product Specifications

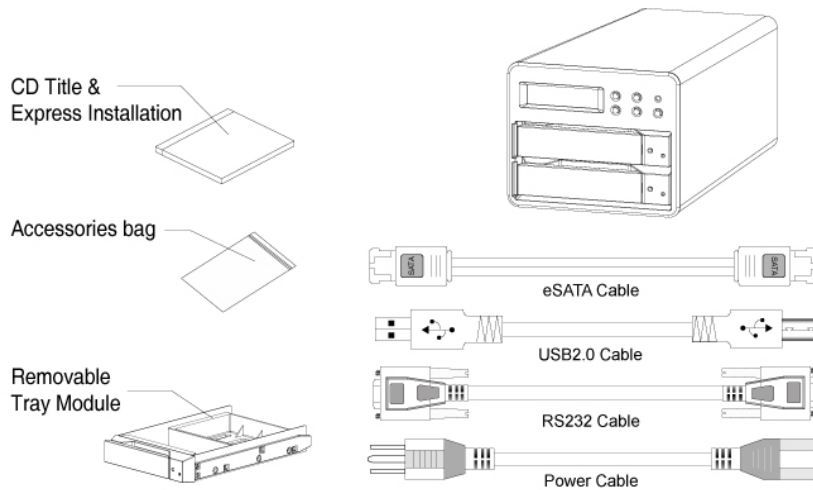|	
Host interface	USB 2.0 + SATA 1.5GHZ
Host transfer rate	USB 2.0(56MB/Sec)/ SATA (150MB/Sec)
RAID Level	RAID 0 / RAID 1
Hard-Disk interface	3.5" Hard-Disk SATA 1.5 GHz
Support large capacity hard-disk	RAID 0 supports up to 1000GB and above, RAID 1 supports up to 500 GB and above
Swappable hard-disk tray design	Supports hot swap capable hard-disk tray at 2 sets
Automatic data reconstruction	Yes
Monitoring software	RAIDGuide GUI software(For Window)
System detector	Failure sensors for hard-disk, Temperature failure and cooling fan detectors
Controller display	LCD screen with blue backlight/control panel
Warning notification	Buzzer
Cooling fans module	3 cm cooling fan at 1 set ; 4 cm cooling fan at 1 set;
Operation system requirement	Windows 2000/XP/Server 2003/MAC 10 or above Linux Core 2.4 or above
Operating temperature	0℃ to 40℃
Power supply	70 watts, Input voltage: 90-240V
Safety certification	CE/FCC
Exterior material	Aluminum case
Dimension	122W x 205D x105H
Weight (kg)	2 kgs.

Chapter 2
Hardware Installation

2-1 Package content

      When you open the box of this product, please refer to the following list of included accessories. In case any of the content is missing or damaged, please contact dealers or authorized agents.

SOHORAID SR3610 included accessories are as follow:

Item Description	Quantity
SR3610 Mainframe	1 unit
eSATA cable	1 pc
USB Cable	1 pc
RS232 Cable	1 pc
Swappable tray	2 pcs
Express installation	1 sheet
Key	4 pcs
Accessory bag	1 pack
(Included 12 pcs #6-32 screws and 8 pcs M3x4 screws)	
Power cord	1 pc
RAIDGuide GUI Monitoring software CD	1 pc
User's manual	1 pc

CD Title & Express Installation

Accessories bag

Removable Tray Module

eSATA Cable

USB2.0 Cable

RS232 Cable

Power Cable

2-2 System requirement

※ Hardware requirement

1. PC or MAC operating system which supports USB 2.0 or eSATA external Ports.

2. Hard-disk which supports SATA 1.5 GHz transfer interface

※ Operation requirement

USB 2.0:   Mac 10 and above

Windows 2000/XP/Server 2003

Linux Core 2.4 and above

SATA :   Mac 10 and above

Windows 2000/XP/Server 2003

2-3 Environment requirement and notices

1. SR3610 allows user to use hard-disks of different specification and storage space in this device. However, if better performance and convenience of selecting hard-disks are desired, it is advisable to use hard-disks of the same specification and same brand.

2. Please make sure the 2 hard-disks been used on this device is of perfect condition in quality, for example no bad track existed on the disk, to avoid possible device failures or lost of all data in the machines when one of the hard-disks fails.

3. SATA interface is much faster than USB 2.0 at RAID 0 mode in terms of data transfer, average transfer rate could reach around 100 MB/sec. If faster speed and better efficiency in data transfer are desired, the system must provide SATA connection port.

4. Please decide on whether to select RAID 0 or RAID 1 (Default Parameter) prior to using this device. After this device is used, reprogramming RAID will cause damage on the data stored in hard-disk.

2-4 How to install hard-disk in swappable tray

1. Place hard-disk in the frame of movable tray, and align the 4 screw positions, then use #6-32 screws to fasten and secure it into position.
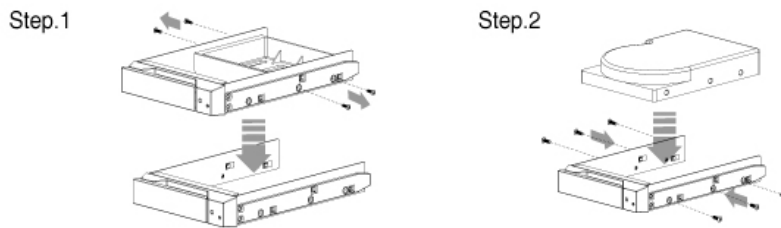

2. When assembly is done, gently push it along the sliding track into the hard-disk compartment of SR3610, and then close the tray, as illustrated below.
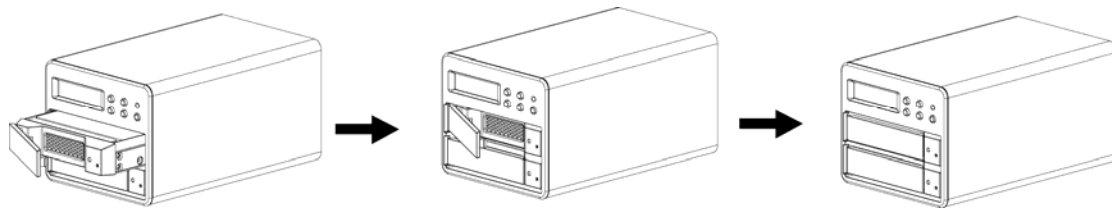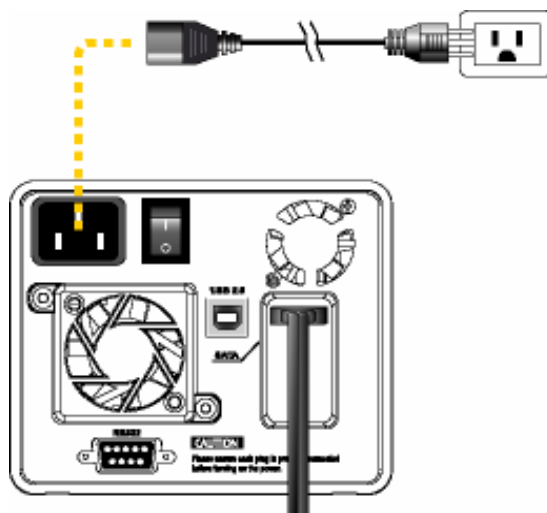
2-5 How to connect SR3610 to computer system

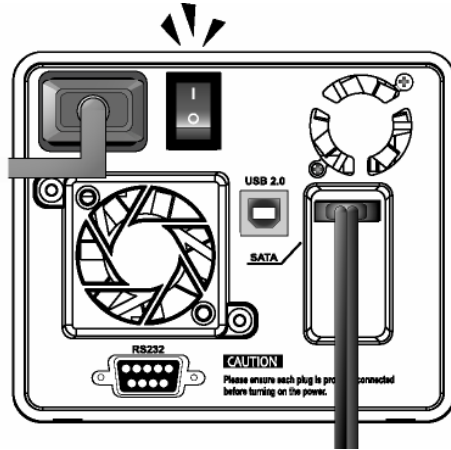1. Given that all power are turned off, connect either one of the USB 2.0 or eSATA transmission cable in the box to the corresponding connection port on the back of SR3610, and connect the other end to the corresponding connection port on the computer.
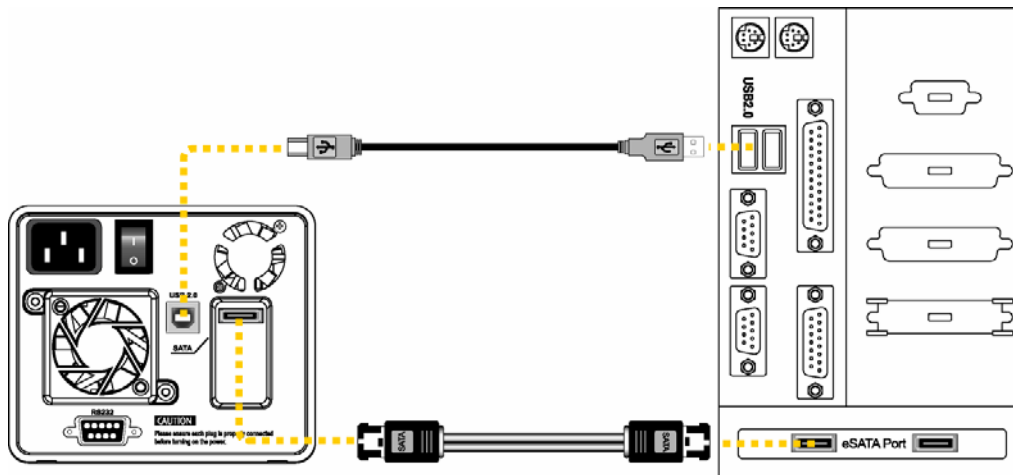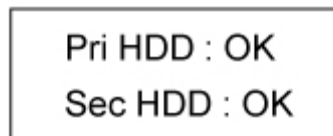

2. Connect the power cord in the box to the power jack of SR3610.

3. Turn on the power of SR3610 (power switch is on the back of the unit)

4.Make sure the primary disk and the second disk are ready which will be indicated by the "OK" message on LCD screen, before turning on the power of computer system, please refer to illustration below.

Caution: Prior to connecting USB 2.0 or eSATA transmission cable to computer, confirm in advance whether the mechanism supporting USB 2.0 or eSATA on computer's main board is ready on the control panel.

If the computer system is not equipped with SATA device, it is available for purchased from Raidon and corresponding connection port on the back of SR3610, and connect the other end to the corresponding connection port on the computer.

.
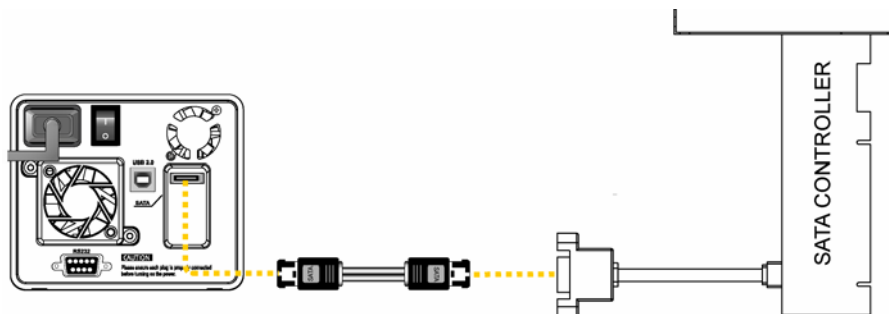
Chapter 3
SR3610 Operation Guide

3-1 RAID Level set up

1. SR3610 is able to support RAID 1 mode or RAID 0 mode with RAID Subsystem. Once RAID Level has been set up, any future changes might cause damage of the stored data during the rebuilding process. Prior to confirming RAID level, please consider each option's respective application as whether the priority is data safety (RAID 1) or storage space expansion capability (RAID 0)

2. RAID Level could be set up by press of buttons on the front panel. SR3610's default value is RAID 1. If RAID 0 is preferred, change could be made by pressing the buttons on the front LCD control panel and follow the instruction displayed on the screen.

Factory default value
‧Operation mode Switch　　　RAID 1

§ Setting up RAID 1
‧Operation mode is set at RAID 1 (default)

※1.Steps for installation of two new hard-disks
　1-1.It is advisable to use 2 exactly the same hard-disks to achieve better performance.

　1-2.After all power have been turned off, place the 2 new hard-disks in the swappable tray of SR3610, since the system has been internally programmed to RAID 1, there is no need for new set up.

　1-3.Using operation tool in the system's control panel, assign appropriate drive to the completed RAID hard-disk, then perform formatting and partition with disk management software.

1-4.It is acceptable to install other software as required. (i.e. RAIDGuide monitoring software)

1-5.If the 2 hard-disks used are of different storage capacity, SR3610 will automatically detect storage capacity, in case one's capacity is larger than the other, then it will base on the smaller one to assign storage space. This method enables the computer to support the smallest hard-disk detected by SR3610.

※2.Steps for installing a new hard-disk and a used one.

In the event of installing one new hard-disk along with a used hard-disk, it is advisable to select the new hard-disk to be same as the other in terms of brand, specification, size and storage capacity. If this is not possible, the new one must be updated specification as well as larger in storage capacity than the old one.

When the swappable hard-disks (including the new one) are in position, SR3610 is able to perform automatic formatting and **data rebuilding** function, and duplicates the data to the hard-disk that will be assigned as new.

2-1.When all power are turned off, first place the already used hard-disk in swappable tray then insert it into the first HDD position of SR3610.

2-2. At the time power of SR3610 is turned on, LED indicator of "ALARM" will glow in orginal and the buzzer will sound; on the LCD, it will display Pri HDD: OK Sec HDD: OFF".

2-3. At this time, insert the new hard-disk into the second HDD position of SR3610, in about 10 to 15 seconds, SR3610 will automatically perform data rebuilding and the progress could be seen on LCD screen.

2-4. Under the condition that PC is not saving or reading data with SR3610, it takes about 20 minutes for a 40GB hard-disk and so forth.

§ Setting up RAID 0

In the event you'd like to install one new hard-disk and one already used hard-disk, it is advisable to select the new hard-disk to be the same as the used one in terms of brand, size, and storage capacity.

‧Operation mode button   RAID 0(Refer Chapter 3-2 to set up)

Turn off   the power of computer and install 2 pcs of hard disks into carries
of SR3610.If the RAID 0 mode already had been set up and then restart turn on the power of computer, it will show capcities of storage under device manager.
Please assign this RAID disk under disk management and then click right of mouse button to run partition.

Notices:
1. In case it is necessary to turn off the power of SR3610 or disconnect its USB 2.0 connection cable, please stop the usage or exit of above items in the computer system. (Hardware icons are displayed at the lower right-hand corner on Windows desktop.)

2. During RAID 0 operation mode, in the event of one hard-disk fails, the all data will be lost.

3. RAID 0 and RAID 1 can not be used simultaneously, only one could be selected   .

4. Attention! In case you wan to switch operation mode from RAID 0 to RAID 1, please backup date and remove it in advance, otherwise, the original date will be lost.

5. RAID 0 will automatically detect the hard-disk with the smaller storage capacity of the two, if one is larger than the other in terms of capacity, it will assign storage space base on the hard-disk with smaller capacity, and combine the storage space of the two to become storage capacity of one hard-disk.
(In other words, the smaller capacity multiplies by 2 to be considered one programmable logic array.)
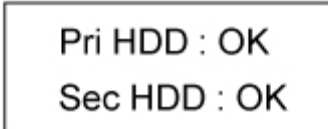
3-2 How to Change and set up RAID mode

Depending on user's requirement, SR3610 offers the option of RAID 0 and RAID 1. Prior to select appropriate RAID level, please consider each option's application as whether the priority is for data safety (RAID 1) or storage space expansion capability (RAID 0).

※ If the system's default value is RAID 1，please refer following steps to change mode from RAID 1 to RAID 0.

1. LCD screen displays status of "Pri HDD ok & Sec HDD ok"
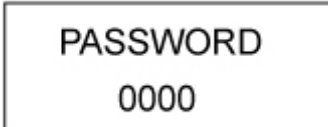   (Disk ready is on the primary deck: OK; Disk ready is on the secondary deck: OK)

```
Pri HDD : OK
Sec HDD : OK
```

2. Press "ENT" button once

3. LCD screen prompts to enter password "0000"
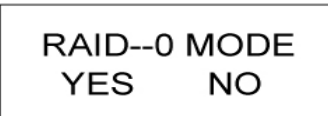   (The default password is "0000")

```
PASSWORD
   0000
```

4. To execute, press "ENT" button for 4 times (It means agreeing with the passwordbeing "0000"), and enters the next screen.

5. Press "▼" button twice, when the message "CHANGE RAIDMODE RAID -0" is displayed on screen., press "ENT " button once.

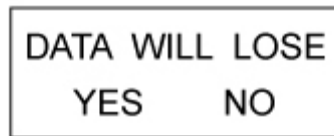6. When the message "RAID- 0 MODE YES NO" appears on LCD screen,
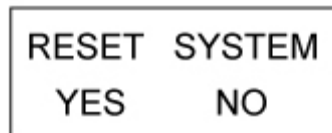
```
RAID--0 MODE
 YES    NO
```

7. If RAID 1 is desired to be switched to RAID 0 operation mode, press "ENT "button

once.

8. Then, the system will display the message "DATA WILL LOSE   YES   NO", if you agree, press " ENT" button once.

```
DATA  WILL  LOSE
  YES      NO
```

9. On the next screen, the message "RESET SYSTEM   YES   NO" will be displayed, if you agree, press " ENT" button once.

```
RESET  SYSTEM
  YES      NO
```

10. After you will hear the sound of a buzzer which means the system is following your instructions to update RAID mode and perform data reconstruction.

In case you wish to switch RAID 0 to RAID 1, please follow above steps, when the screen give you a prompts as "RAID- 1 MODE   YES NO", please press "ENT" button once, then follow the above steps to continue, and system will update RAID mode and perform data reconstruction.

※**The button on the LCD panel introducing as below:**

"▼" **button**: It appoints that it the sames as "down" function when you want to enter to "next page" page or adjst the paramete.

"▲" **button:** It appoints that it the sames as "up" function when you want to enter to "forward" or adjust the parameter.

" ENT " **button:** It appoints that it the same as "enter"function when you want to enter the new parameter into the system.

3－3 How to set up Schedule Backup

Design Idea:

The two hard-disks simultaneously backup data on line when user using the RAID 1 mode‧ To avoid both hard-disk data including the virus which are been attacked at the same time.
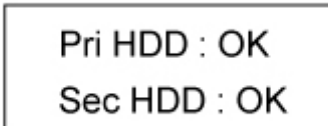
Please using the Schedule Backup operation under SR3610,the data of primary RAID disk will rebuild to the second RAID disk at the appoint time.

It does not need to backup data anytime and store them to the RAID subsystem, otherwise it can save the system processing time to ensure the data get more safety and reliability.

How to use Schedule Backup
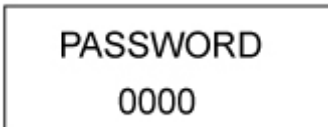
To allow user to program the days (1 to 30 days) on their own, As scheduled time arrives, the system will automatically back up data‧

1. Screen displays "Pri　HDD　ok &Sec HDD　ok"
   (Disk ready is on the primary deck :OK ; Disk ready is on the secondary deck:OK)

```
Pri HDD : OK
Sec HDD : OK
```

2. Please press " ENT" button once

3. Screen prompts to enter password "0000"
   (The default password is "0000")

```
PASSWORD
  0000
```

4. To execute, press " ENT" button for 4 times, and enter the next screen.

5. When the message " SCHEDULE BACKUP YES NO" is displayed on screen, if you agree, please press " ENT" button once

```
┌─────────────────────┐
│ SCHEDULE   BACKUP   │
│    YES        NO    │
└─────────────────────┘
```

6. The next screen appears with "SCHEDULE BACKUP TIME 1->30 (DAYS) 00"

```
┌─────────────────────┐
│ SCHEDUL BACKUP      │
│ TIME1->30(DAYS)00   │
└─────────────────────┘
```

7. Please use "▼"or "▲" button to adjust the days of your desired backup schedule.

8. If the days are done, press " ENT" button once.

```
┌─────────────────────┐
│ ARE YOU SURE        │
│    YES   NO         │
└─────────────────────┘
```

9. Next the screen appears with "SET BACKUP TIME 1->30 (DAYS) 01" that the days of your desired backup schedule will be set up already.

10. If the days of your desired backup schedule becomes "00" that it will be set up the RAID 1 mode. The RAID 1 will be enabled after you restart the power of SR3610 again.

※**Cautions:**

1.If backup is not done instantly, in case of hard-disk failure, the data from the time of last backup will be lost.

Please take care using the RAID 1 mode or **Schedule Backup**，and consider the setting days of the Schedule Backup before user decide to any operation.

2.The schedule backup that it is really not to appoint other device as rebuilding data to the internal RAID system,but to rebuild the data in the RAID system by itself at regular time.

※**How to change the function from Schedule Backup to RAID 1 mode**

1. Please enter to the "SCHEDULE BACKUP" operation mode on the LCD screen again.
2. Please adjust the time days to become "00" and make sure them input the system under Schedule Backup operation mode.(As The next screen appears with "SCHEDULE BACKUP TIME 1->30 (DAYS) 00", please following the service manual chapter 3-3)

```
SCHEDUL BACKUP
TIME1->30(DAYS)00
```

2.If you finish the above steps, please restart the power of SR3610 to ensure the days parameters are embedded then RAID 1 will be enabled.

Note.
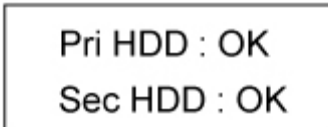
1.The parameters had been embedded under SR3610, please should be restart the Power to ensure the setting is enable.

2.Complete the above procedure and restart the power, the system will become the RAID 1 mode. If you want to change from RAID 1 to RAID 0, please refer to the service manual chapter 3-2

3－4 How to change password

In order to avoid involuntary modification of parameters, SR3610 features personal password function so that data is better protected by the manager. But please be aware, once password is changed, the new password must be written down, if it is lost, it will create difficulties for the manager.
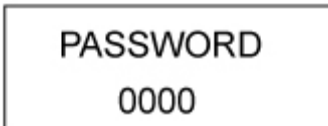
1. Screen displays "Pri   HDD   ok &Sec HDD   ok"

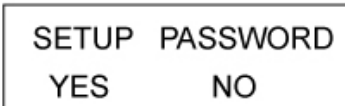   (Disk ready is on the primary deck: OK; Disk ready is on the secondary deck: OK)

```
Pri HDD : OK
Sec HDD : OK
```

2. Press " ENT" button once

3. Screen prompts to enter password "0000"
   (The default password is "0000")

```
PASSWORD
  0000
```

4. To execute, press " ENT" button for 4 times, and enters the next screen.

5. Please use "▼"or "▲" button to select various functions

6. When the message " SETUP   PASSWORD   YES&NO" appears on screen, if you agree, press " ENT" button once

```
SETUP  PASSWORD
 YES      NO
```

7. Please use "▼"or " ▲" button to set up the 1st, 2nd, 3rd and 4th digit of password.

8. After a selection of each digit is made, press button once

9. Press "▼"or "▲" button to continue the selection of remaining digits of password.

10. After change is done, screen will display following message "PASSWORD:8000 YES&NO".
   (Password: 8000, the digits could be selected at user's discretion, not permanent)

```
PASSWORD : 8000
 YES      NO
```

11. Press "ENT" button once, screen will display "SETUP PASSWORD OK."

```
SETUP PASSWORD
OK.
```

3－5 How to update Firmware

Please connect the RS232 cable to RS232 port of PC, and use the included disk to install RAIDGuide software. When installation is completed, RAID drive must be detected by the control panel as well. Go to program list to run RAIDGuide and open corresponding windows. From the tools menu at upper screen, select "Advance" then RAID System 1 Setting. Multiple-function window appears, select RS232 UPGRADE button,click "Confirm" to execute updating Firmware.
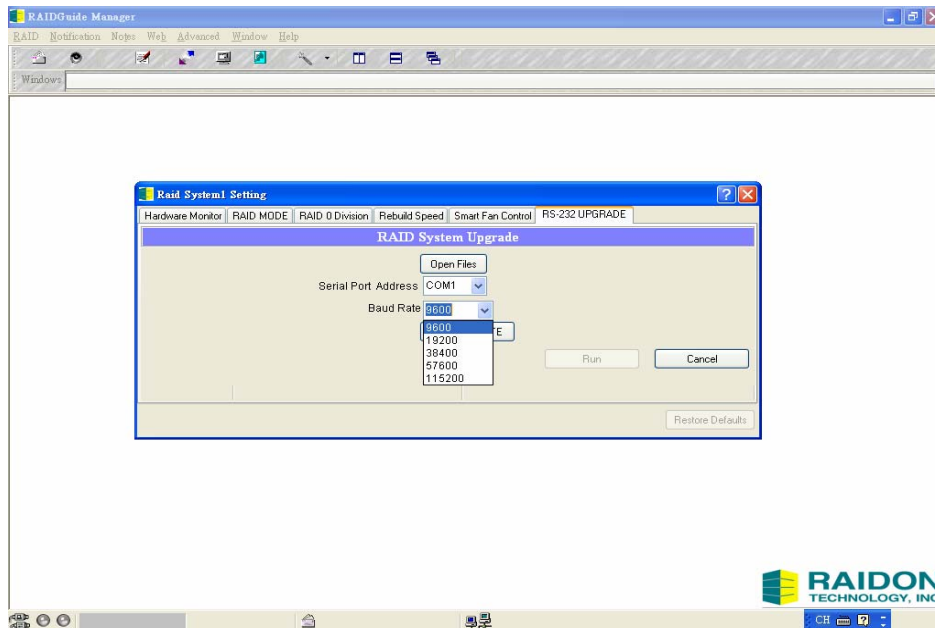
Select Baud Rate:9600   Serial port address:Com1
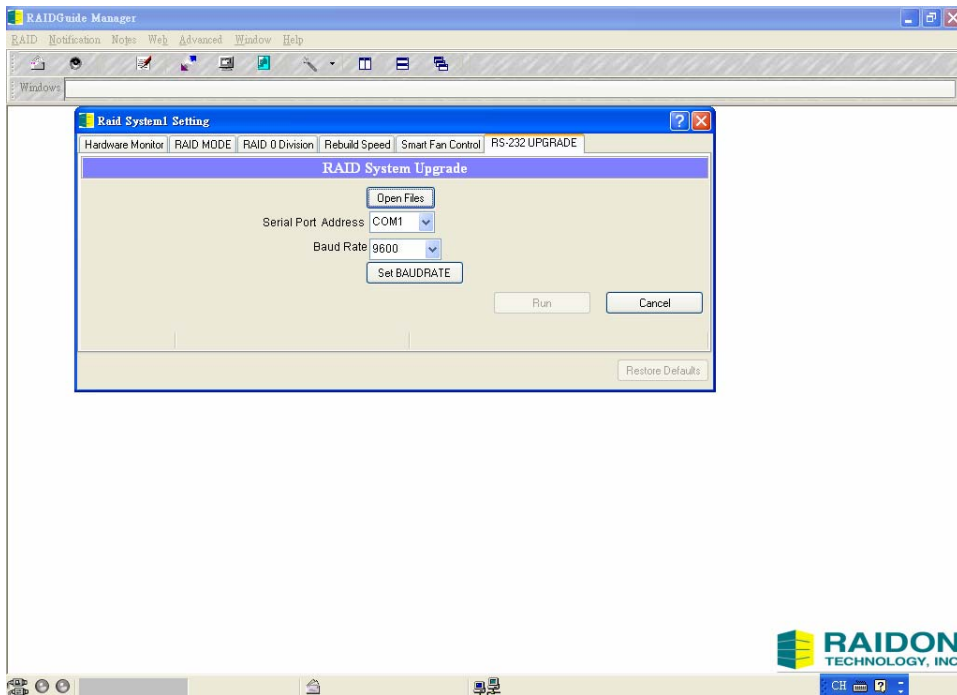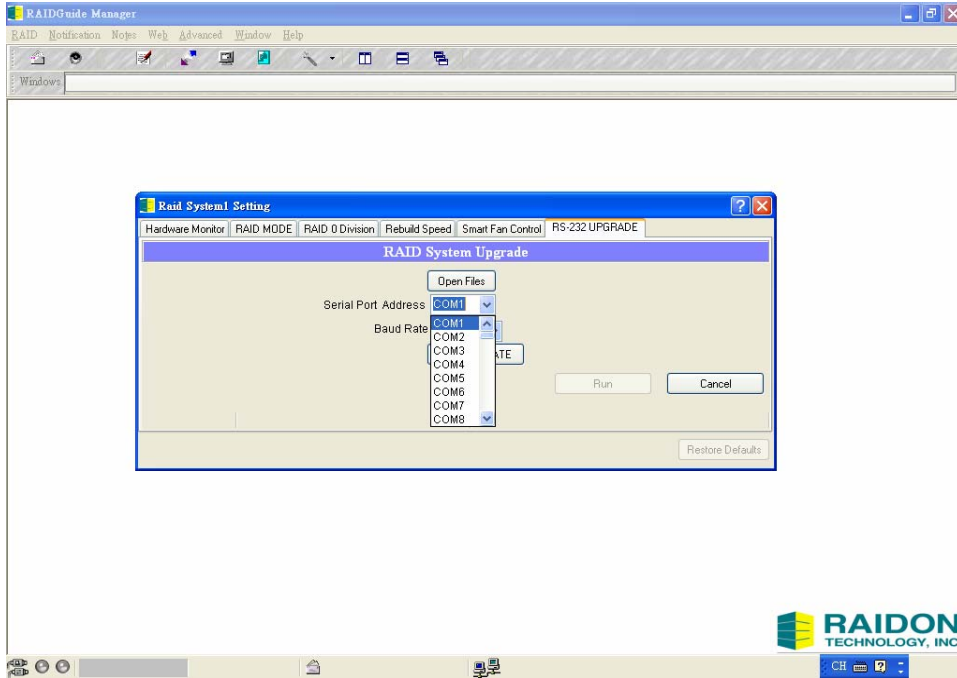
At the end, activate "Open Files" button to open the location of Firmware.

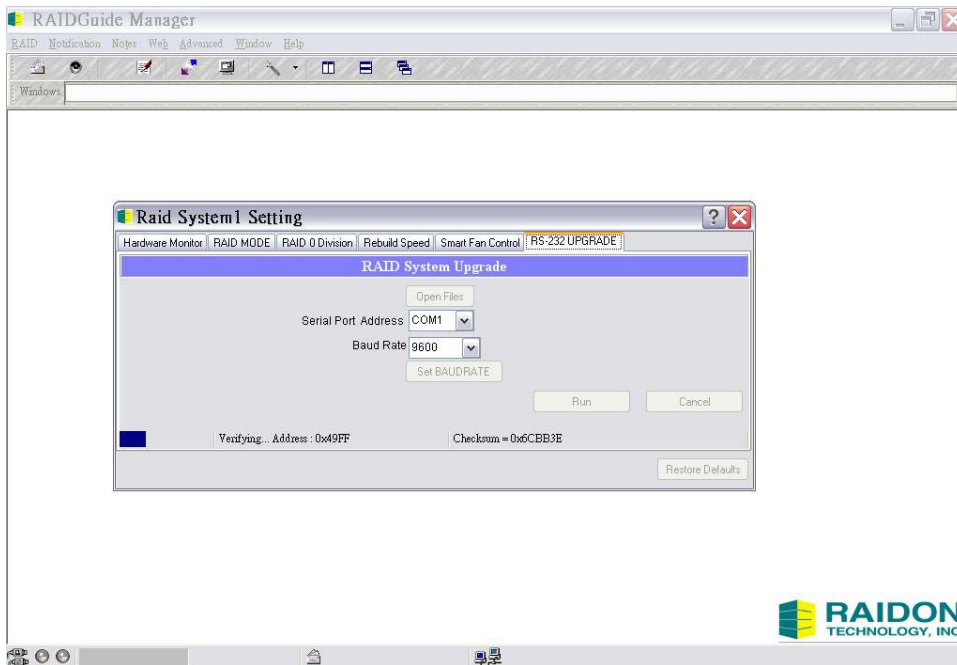Specify correct file path for updated Firmware, when finish, execute "Run" button.
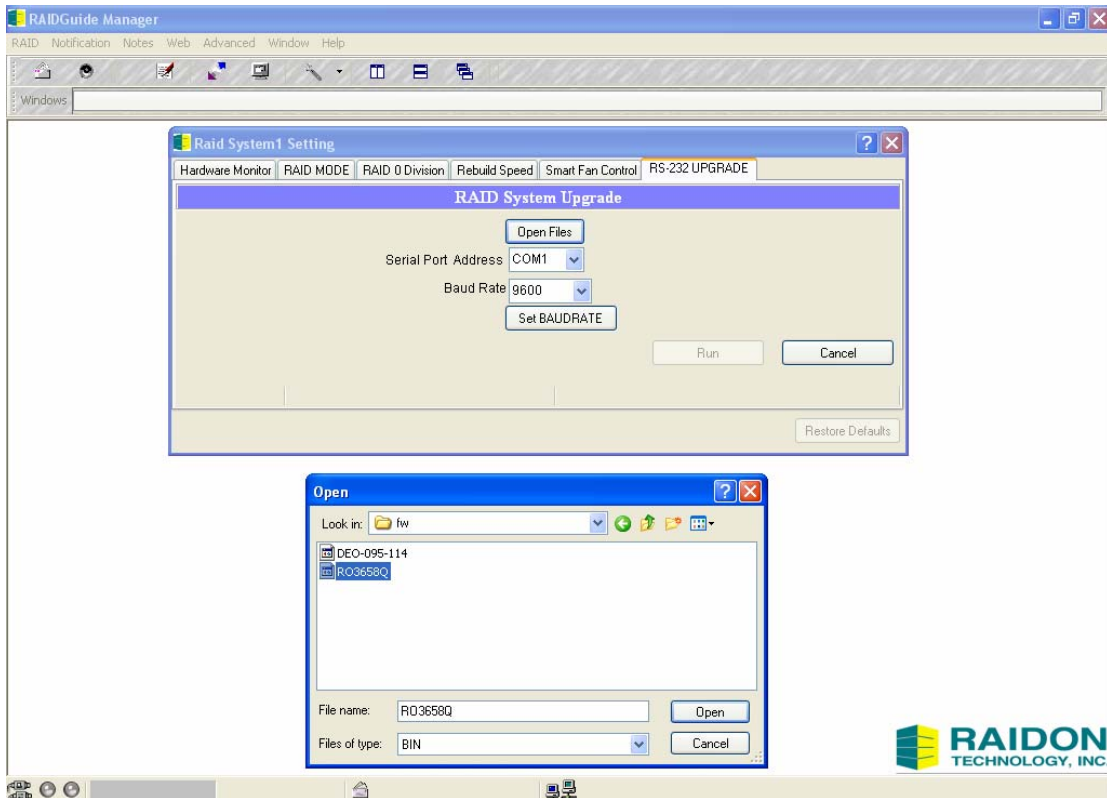
The system is executing and will display following information "Verifying….Address: xxxxx" which means Firmware is been updated..

When updating is completed, system will display completion information which means successful operation.

3-6 Operation Guide when using Windows operating system.

If SR3610 hardware installation has been completed, you can turn on the power again and connect this device to PC.

1. Please connect power cord to power jack on the back of SR3610.

2. Connect USB 2.0 or SATA cable to the connection port of Windows operating platform that supports this device.

3. Turn on the power of SR3610 and confirm whether the display on computer screen is normal.

4. In a few seconds, system will automatically detect this device.

5. Verify and confirm whether the icon of this device is listed in the task bar of Windows desktop.

When SR3610 and USB 2.0 or SATA device are already and to specify the RAID operation mode is done, perform partition and formatting procedures on the hard-disk using disk management tool in control panel of operating system before it could be used.

If you use SATA/USB 2.0 device but your system does not support SATA/USB 2.0 transfer port, SATA/USB 2.0 interface PCI controller card is available for purchased from us.

3-7 Operational guide when using Macintosh operating system

If SR3610 hardware installation has been completed, you can turn on the power again and connect this device to Macintosh.

1.Connect USB 2.0 cable to Macintosh operating platform that supports this device. For examples, MAC G3, G4, G5, iBook

2.In case you'd like to connect SATA cable to Macintosh operating platform, SATA interface PCI control card required.

3.Please connect power cord to power jack in the back of SR3610

4.Turn on the power of SR3610 and confirm whether the display on computer screen is normal.

5. Turn on the power of Macintosh platform

6.Given that installation of driver for USB 2.0/SATA has been completed for Macintosh platform,

7.Turn on the power of Macintosh platform

8.Please confirm SR3610 and USB 2.0 or SATA device are ready, and then assign this RAID hard disk to partition and format.

9.How to operate partition and formatting on RAID drive are as follow:

Formatting (just like formatting function of PC)
   9-1.Point cursor at tools menu on desktop, and select disk tools utility, the disk tools window will appear paging files including several options (i.e.Repair tool/Delete/RAID/Reinstallation)

   9-2.If RAID drive is ready, RAID drive information will be appeared on the left window

   9-3.In case disk and various folders need to be deleted, please select RAID drive

icon to specify a format and name, the click delete once.After the message
Will be shown as"deleting disk will erase all data in this folder, are you sure to delete "XXX" disk? Delete or Cancel" will be displayed, to delete, click Delete once.

Partition

9-4.Select Partition disk and folder framework as you wanted, click folder displayed in framework and specify the name, format and size of folder, then the message will be shown as "partitioning disk will erase all data in this folder, are you sure to partition XXXXXX disk? Delete or Cancel", then click partition once.

3-8 Hard Disk status on LCD screen

Possible reasons for invalid hard-disk:

1. Malfunction

2. Not able to recognize, could be compatibility issue, or partial damage tracks

    - Message displayed for not able to detect main hard-disk: FAIL

    - Display for second hard-disk detected: OK
    (As shown in illustration)

```
Pri HDD : Fail
Sec HDD : OK
```

(※There are 3 status messages that could be displayed for hard-disk information
    1.OK→ HDD 2. Ready 3.FAIL
    OK→ Hard-disk ready；OFF→ Hard-disk not installed；HDD FAIL→ Invalid
    hard-disk)

    - Information displayed for detecting main hard-disk: OK
    - Information displayed for not able to detect second hard-disk: FAIL
    (As shown in illustration)

```
Pri HDD : OK
Sec HDD : Fail
```

    - Information displayed for not able to detect main hard-disk and second hard-disk:
    FAIL

```
Pri HDD : Fail
Sec HDD : Fail
```

Information displayed for successful detection of main hard-disk and second
Hard-disk: OK .(As shown in illustration)

```
Pri HDD : OK
Sec HDD : OK
```

- When SR3610 is overheating, "T" will be displayed on the upper right-hand
corner of screen .(As shown in illustration)

```
Pri HDD : OK        T
Sec HDD : OK
```

- When cooling fan module is not functional, "F" will be displayed on the lower
right-hand corner of screen. (As shown in illustration)

```
Pri HDD : OK
Sec HDD : OK      F
```

When SR3610 is not able to detect first or second hard-disk, the buzzer will sound,
and screen will display follow message as shown in illustration.

```
Pri HDD : Fail
Sec HDD : OK
```

(Illustration 1)

```
Pri HDD : OK
Sec HDD : Fail
```

(Illustration 2)

LCD display for changing hard-disk:

When you insert a new hard-disk into or replace the current hard-disk in the second
swappable tray, system will deem this as a damaging operation, the buzzer will sound
and screen will display an error message.

```
┌─────────────────────────┐
│   Pri HDD : OK          │
│   Sec HDD : Fail        │
└─────────────────────────┘
```

In a few seconds, a correct message will be displayed on screen, and follow by another message indicating automatic reconstruction of data is in progress, as show in illustration.

```
┌─────────────────────────┐
│   Pri HDD : OK          │
│   Sec HDD : OK          │
└─────────────────────────┘
```

```
┌─────────────────────────┐
│   Rebuilding.....       │
│   Pri->Sec xxx%         │
└─────────────────────────┘
```

When data is completed, hard-disk will be detected automatically, and a correct message will be displayed.

```
┌─────────────────────────┐
│   Pri HDD : OK          │
│   Sec HDD : OK          │
└─────────────────────────┘
```

※For product, assistance or support, please visit the RAIDON website.

http://www.raidon.com.tw

※ For product support, please email to below address.
supporting@raidon.com.tw