# EXTERNAL RAID STORAGE OF HDDS
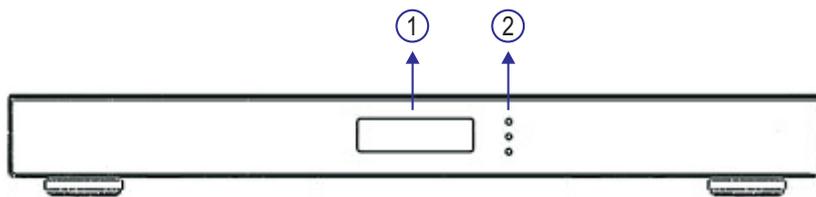
## INSTRUCTION MANUAL

# PRECAUTIONS

⊗ **Do not drop or strike this equipment.**
It will cause damage to the equipment.

⊗ **Do not install the equipment near any naked flames or heat sources.**
The presents of flammable gas or object in the operating environment or exposing this unit to direct sunlight may cause fire and severe injury.

⊗ **Do not expose this unit to rain , moisture , smoke or dust environment.**
May cause short circuit, fire and serious damage to this unit.
Unplug this unit and have it checked by qualified service personnel.

⊗ **Do not cover the opening of the cabinet with cloth and plastic or to install this unit in poor ventilated places. Allow 10cm between this unit and its surroundings.**
May cause overheat. The normal operating temperature is $0°C \sim 40°C$.

⊗ **Do not continue to operate the unit under abnormal conditions such as detection of smoke, strange smell or no display on screen while power is turned on.**
Contact qualified service personnel for help.

⊗ **Do not touch the power connection with wet hands.**
May cause short circuit or electric shock.

⊗ **Do not damage the power cord or leave it under pressure.**
May cause fire or shock hazard.

⊗ **Do not operate this unit near magnet, speaker system, etc., to avoid unnecessary magnetic interference.**
These interference will cause color confusion and screen fluctuation.

⊗ **Do not drop metallic parts through slots.**
This could permanently damage the appliance.

⊗ **Connection cables should be grounded properly.**
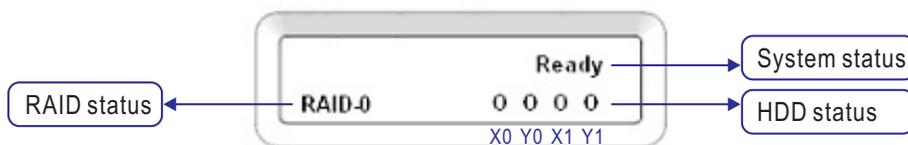Sudden surge such as lightening will damage the system permanently.

# EXECUTIVE SUMMARY

This device is a high performance stand-alone SATA RAID hard disk storage system.

SATA RAID hard disk storage system's RAID controller has RAID-0 and RAID-0+1 and NRAID modes which can provide up to 2TB hard disk space at RAID-0 and 1TB hard disk space at RAID-0+1. SATA RAID hard disk storage system is very easy-to-use without complicate system setting. Plug-and-play design allows interfacing with a DVR or a PC via SATA cable. With versatile RAID setting, reliable system performance, large hard disk space, low maintenance cost, and plug-and-play interface, SATA RAID hard disk storage system is the best solution for DVR and many other applications.

# SYSTEM OVERVIEW



## 1. LCD Indicator



System status：Display the status of the storage system.

        Ready → The system is ready to be operated.

        SysFail → Please check jumper settings, SATA cable, and the SATA power connectors.

RAID status：RAID status can be RAID-0, RAID-0+1 or NRAID which depends on the jumper setting.

HDD status：HDD status indicates the HDD detected status of all four HDDs.

        From left to right, HDD symbols represent HDD channels X0, Y0, X1, Y1.

        The status are described as in the following table:

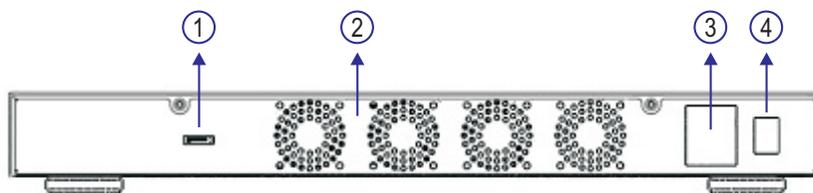| Symbol | Description |
|--------|-------------|
| O | Installed and detected. |
| X | Installed but NOT detected. |
| F | During access, SATA RAID detects HDD(s) failure |
| -- | NOT installed and NOT detected. |

## 2. LED Indicators

LED indicator is described as:

Red LED → HDD failure or system warning.
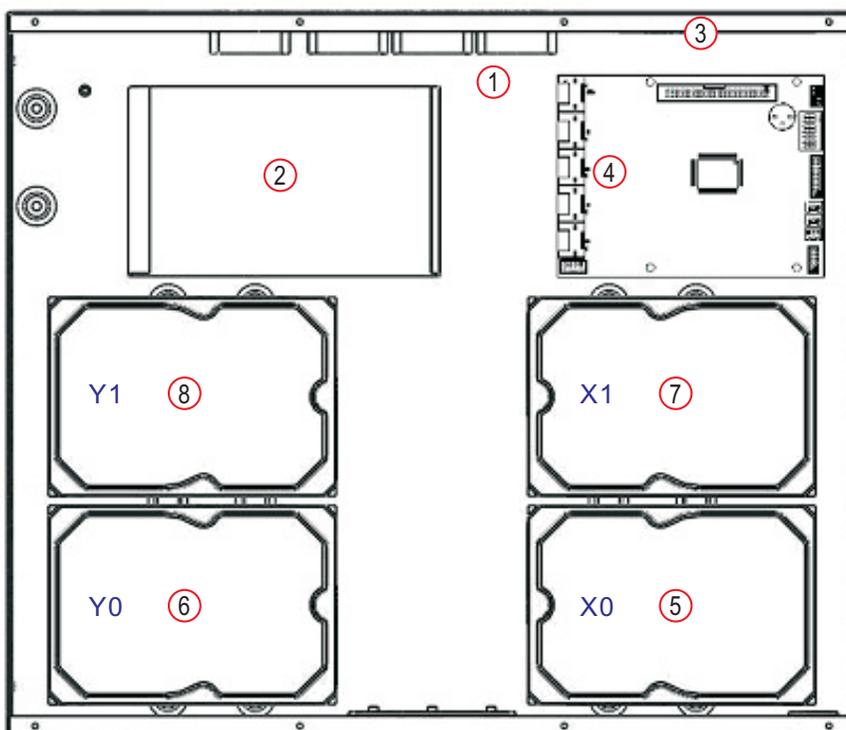
Yellow LED → Data access indicator.

Green LED → Power indicator.

# REAR VIEW



1. SATA cable: Connect to a DVR or a PC.
2. Cooling fans
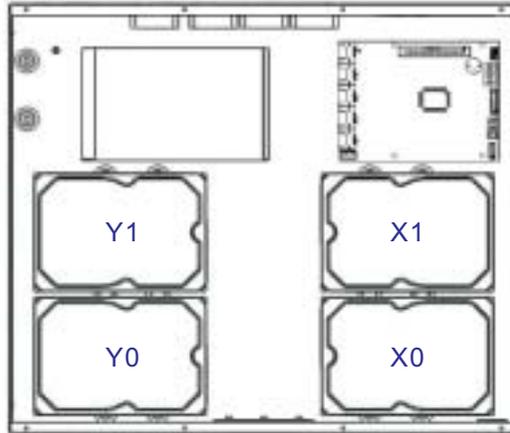3. AC90~260V power input
4. Power switch

# MAJOR COMPONENTS



1. Cooling Fans              5. HDD X0
2. Switching Power           6. HDD Y0
3. SATA connector → To DVR or PC    7. HDD X1
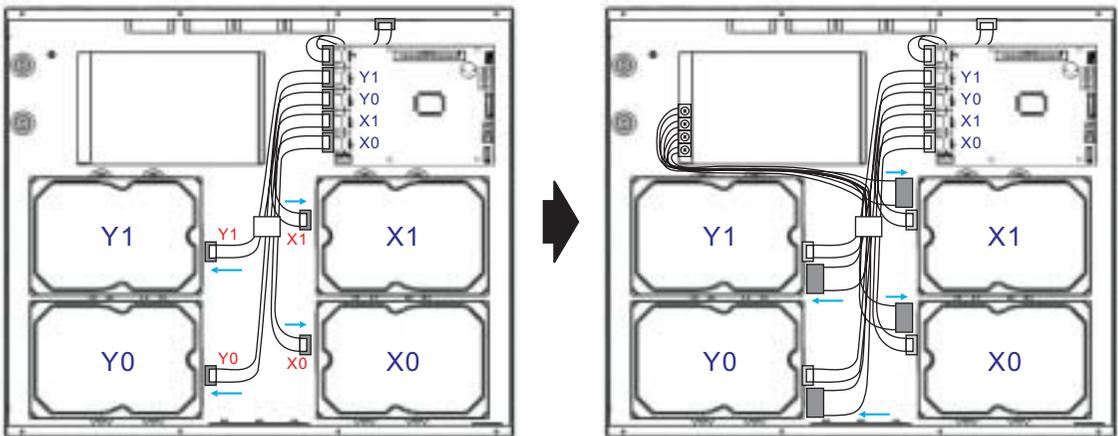4. SATA RAID Controller      8. HDD Y1

# INSTALLATION

To install HDDs, follow the following instructions:

1. Power off SATA RAID hard disk storage system.
2. Remove the top cover.
3. Fix the HDDs on the designate area with supplied screws.



4. Connect SATA cables from SATA RAID Controller to the HDDs accordingly.
5. Connect SATA power cables to SATA HDDs.



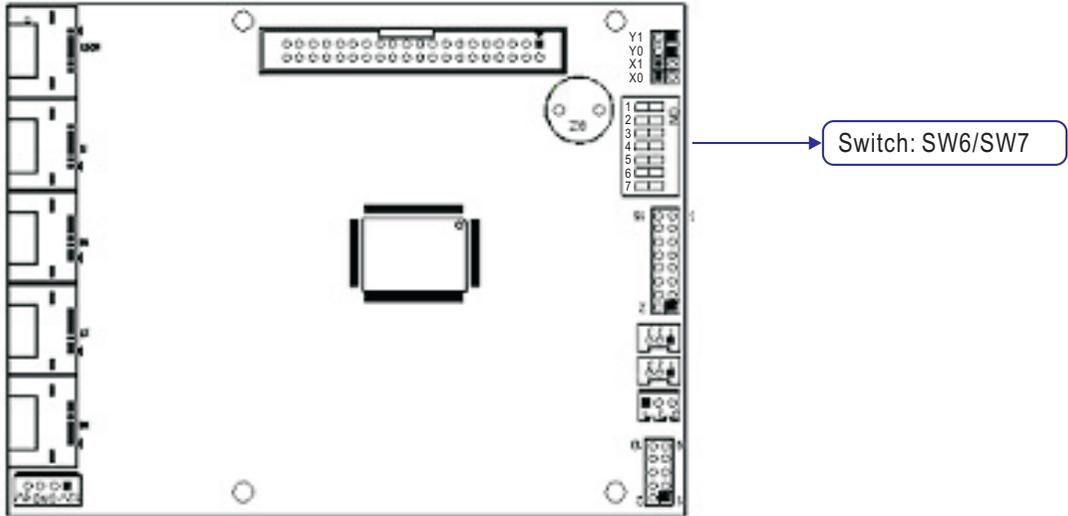6. Set RAID mode jumper if applicable. See RAID mode jumper setting section.
7. Place top cover back.
8. Power on SATA RAID hard disk storage system.
9. Verify HDDs installation on LCD panel.

> **Verify HDDs status**
>
> To verify HDDs are installed properly, please make sure all "O O O O" are shown on HDD status.
> For example: HDD status is "O X O O"
> The HDD at SATA port Y0 is installed but not detected.

# RAID MODE JUMPER SETTINGS



Switch: SW6/SW7

SATA RAID hard disk storage system can be installed for four HDDs at various RAID modes.
Please set the switch at the following table:

| HDD | SATA Port | SW6 | SW7 | RAID Mode |
|-----|-----------|-----|-----|-----------|
| 4 | X0/X1/Y0/Y1 | OFF | OFF | RAID-0 (Stripping) |
| 4 | X0/X1/Y0/Y1 | OFF | ON | RAID-0+1 |
| 4 | X0/X1/Y0/Y1 | ON | OFF | NRAID |

## Based on different applications, the following RAID mode is highly recommended:

### 1. DVR application:

For DVR application, if one HDD is failure and gets replaced for a new one, the video of the rest HDDs can still be retrieved. There is a risk for loosing the video on the failed HDD. However, if the video is very critical, RAID-0+1 is recommended.
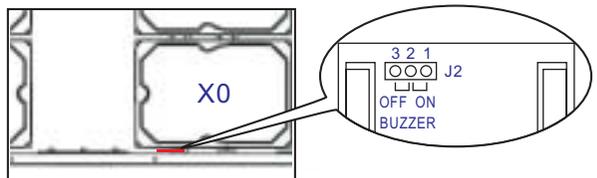
### 2. Data critical application:

If the data is very important, RAID-0+1 is recommended.

# DISABLE BUZZER

To disable buzzer, please set J2 jumper accordingly.
J2 : Buzzer ON  : 1, 2 — ON (default)
     Buzzer OFF : 2, 3 — ON

# DATA ACCESS and DATA RECOVERY

### 1. NRAID data access:

NRAID mode accesses HDDs in X0, X1, Y0 and Y1 sequence order. If one of the HDD is failed, please replace the HDD. The data on rest of the HDDs can still be retrieved.

### 2. RAID-0 data access:

RAID-0 mode records data concurrently on all four HDDs. If one of the HDDs is failed, the rest of the data on the HDDs CAN NOT be restored.
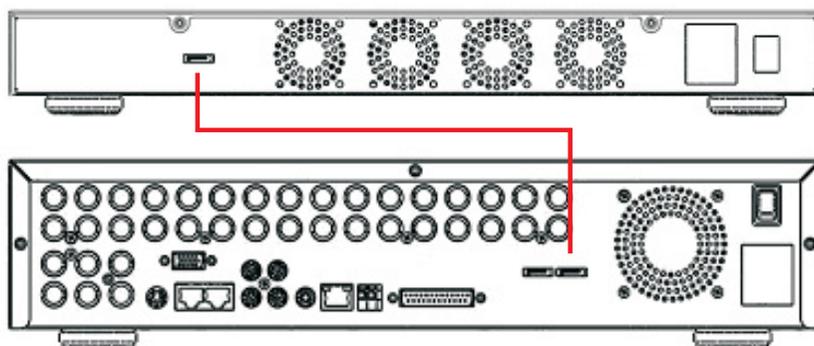
### 3. RAID-0+1 data access:

The sequence of data writing for HDDs is from X0 to Y1. Y0 and X1 HDDs are mirroring HDDs of X0 and Y1. X0 and Y0 are mutual mirroring. Y1 and X1 are mutual mirroring. For example, if Y1 is failed, please install same brand and size of HDD for Y1. The data on X1 will get transferred to Y1.

When RAID controller detects a HDD failure, LCD panel shows "F" for that HDD. Please turn off SATA RAID and replace the HDD. Turn on the power of SATA RAID. A progress counter indicates that the data of backup HDD gets duplicated to the newly installed HDD. After the duplicating process, please turn on the PC or DVR.

# CONNECTION

To connect SATA RAID hard disk storage system to a PC or a DVR, please follow the instructions:
1. Connect SATA cable from SATA RAID hard disk storage system to a PC or a DVR
2. Power up SATA RAID hard disk storage system and make sure all HDDs get recognized and installed.
3. Power up the PC or DVR.

# FAQ

Q1: Can I install different brands of HDDs or HDD sizes in SATA RAID hard disk storage system?

A1: It is highly recommended to use same brand and same size of HDDs in SATA RAID hard disk storage system.

Q2: What will happen if I install different size of HDDs in SATA RAID hard disk storage system?

A2: Only the smallest HDD size gets used for SATA RAID hard disk storage system for RAID-0 and RAID-0+1.

Q3: Can I still use SATA RAID hard disk storage system if LCD panel shows "X" at HDD status?

A3: The HDD could be broken, try rebooting SATA RAID hard disk storage system. If rebooting can not still solve the problem. Send the HDD back to the manufactruer for repair.

# SPECIFICATIONS

| | |
|---|---|
| Host Interface | SATA |
| Host Transfer Rate | 150MB / Sec. |
| Hard Drive | 4 x 3.5" SATA Drive |
| Largest Capacity | RAID-0 up to 2TB, RAID-0+1 up to 1TB |
| Support Big Drive | Yes |
| RAID Level | RAID-0 、RAID-0+1 、NRAID |
| Support Hot-Swap | Yes |
| LCD Display | Yes |
| O.S. Independent | Mac 10.2, Windows 2000/2003/XP, OS Independent (SATA) |
| Power Supply | AC90~260V Max., 85W |
| Dimension | 470(L) x 434(W) x 45(H)mm |
| Weight | 5.6Kg (W/O HDD) |

＊Design and specifications are subject to change without notice.

*DISTRIBUTOR:*