ARAID99® 1000L, 1010

User's Manual V1.0 2004

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Thank you for purchasing **ARAID99 1000L or 1010**

Important Notice

Please read the following articles carefully before using ARAID99

- ARAID99 1000L and 1010 at RAID 1 complies with industrial standard RAID 1 (disk mirror) definition.
- ARAID99 1010 at RAID 0 complies with RAID 0 (disk stripe) definition.
- **Important**:

  Set both hard disks in upper and lower trays to "Master" or "Single Drive" mode.

  Or otherwise, ARAID99 cannot detect/recognize any hard disk in the trays.

  (Note: "Master" or "Single Drive is the default jumper setting for most brand new IDE hard disks.)
- For the best performance, please use two identical (exact same brand and model) hard drives for ARAID99. They must be either brand new or in good condition.

  Recommended hard drives: Seagate, Maxtor, Western Digital, Hitachi(IBM), Fujitsu UDMA133/100/66 hard disks with minimum 40 GB capacity.
- Please prepare a spare hard drive (identical model), in case such models are no longer available from the market over time. If an identical model is unavailable, use other models with larger capacity and higher speed from the same manufacturer. See Q&A for details about upgrading hard drives.
- If you want to duplicate a target hard drive, you may simply use the Auto-Mirror function (default mode) to duplicate without using FDISK and FORMAT functions to partition or format the new hard drive.
- If ARAID99 1000L or T1000LM cannot work with the host EIDE on your PC in UDMA mode, it will automatically switch to PIO mode 4 or lower speed.
- ARAID99 1000L or T1000LM is equipped with an 80mm cooling fan to ensure good ventilation for heavy duty servers using a hard drive at 7,200 rpm. However, cases with enhanced ventilation are recommended for heavy duty servers using two hard drives at 7,200 rpm to prevent unpredictable system or RAID failure due to poor ventilation.
- For smooth operation between two hard drives, please make sure that both hard drives must be in good condition. ARAID99 has been designed with strict EIDE command set and accurate timing for reliable and fast RAID on most O.S. without using any driver. If a hard drive with too many bad sectors and fails to respond to ARAID 99's CPU, it will be reported as FAIL on the ARIAD99 LCD. Though such hard drives may work on a PC without problems, we recommend you to use a new hard drive, for unpredictable problems may occur.
- Important: For ARAID99 1000L and ARAID99 1010 RAID 1 Users:

When the front panel operation mode switch is set to **Single**, ARIAD99 can only access to Mobile Rack1 (Upper Bay) disk, and the mirror function is disabled. Set front panel switch to **Default** to enable ARAID99 disk mirror(from upper to lower tray) function.

- Important: For ARAID99 1010 RAID 0 Users:

The front panel operation mode switch must be always set to **Default**.

Unpacking **ARAID99 1000L , 1010**

1. Unpack ARAID99 1000L or 1010 from the carton.
2. Check the following items are in the box.

   Contact your dealer if any item is missing or damaged.

   - Mobile rack 1 (in Upper Bay)
   - Mobile rack 2 (in Lower Bay)
   - Security key x 2
   - Screws
   - User's manual
   - Software CD
   - RS-232 Cable
   - AraidEye for Microsoft Windows.(ARAID99 monitoring utility)

3. Optional items for managing ARAID99 1000L/1010:
   A. AraidEye for Linux
   B. SNMP Agent for Windows XP Pro, 2000, Server 2003.
   C. SNMP Aent for Redhat, S.U.S.E. Linux.
   D. Accordance OpManager 4 – SNMP Network Management Software

ARAID99 1000L with two trays

Mobile Rack

(a) Front view of mobile rack with hard drive

(b) Rear view of mobile rack with hard drive

Functions and Features

- ARAID99 1000L provides RAID 1 function to ensure two hard drives always remained mirrored during normal operation.
  - Alternatively, it also provides switch-enable proprietary Mirror-On-Demand backup function.
- ARAID99 1010 provides either RAID 1 or RAID0 function.
  - When operation mode switch set to RAID 1, it provides Disk Mirror function same as ARAID99 1000L.
  - When operation mode switch set to RAID 0, it provides Disk Stripe function.
- No driver is needed for most PC Operating Systems
- Real PnP design for direct connection to EIDE interface without any add-on card
- Supports hard drives from most leading brands
- See HDD H.C.L./Hardware Compatibility List for details
- Supports hot swap and ARF on most supported OS
- LCD displays system, disk operation and fan temperature status
- LED indicators illustrate disk read/write status.
- Built-in buzzer alerts disk failure and fan operation problems
- 80mm high-performance cooling fan provides good ventilation for hard drives at 7,200 rmp
- Power requirement: +5V and +12V
- Security keys

Specifications

- **Dimension:** 236X146X86 mm (DxWxH) (space for two 5.25"bays)
- **Weight** (without hard drive): approx. 2 kg
- **Temperature:** 0°C-55°C (operating); -20°C-70°C (standby)

System requirements

- IBM PC compatibles (Pentium IV, III, II or Pentium MMX/Pentium compatibles)
- Standard IDE/EIDE hard drive interface and hard drives
- Supported O.S.: Windows Server 2003, 2000, NT 4.0, XP/ME/98/95; DOS6.22; LINUX; SCO OpenSever; Free BSD; NetWare; Solaris, IBM OS/2 Warp, Mac O.S.

Front view
Function descriptions

1. LCD window
2. Buzzer on/off switch
   Tray location or disk failure (Fail) information will be displayed on the LCD regardless of buzzer status.
3. **LED Read/Write**: **Read/Write** indicator of Mobile rack 1
4. **LED Read/Write: Read/Write** indicator of Mobile rack 2
5. Operating Mode switch (**Single** or **Default**):

A. For ARAID99 1000L and ARAID99 1010 RAID 1 Users:

Single: single disk operation -- ARAID99 can access to source disk only. (in Upper Bay)

Default: normal operation/dual disk operation -- ARAID99 can access to both disks, i.e., disk mirror function is enabled.

When you switch from **Single** to **Default** when ARAID99 is in progress, ARAID99 will automatically proceed with real-time disk mirror from Upper tray to Lower tray (Manual Mirror-On-Demand).

B. For ARAID99 1010 RAID 0 Users:

Single: This selection is no function at RAID 0.***NEVER USE THIS POSITION AT RAID 0.***

Default: Normal operation position for RAID 0, two hard disks are striped.

Warning for RAID 0 Users:

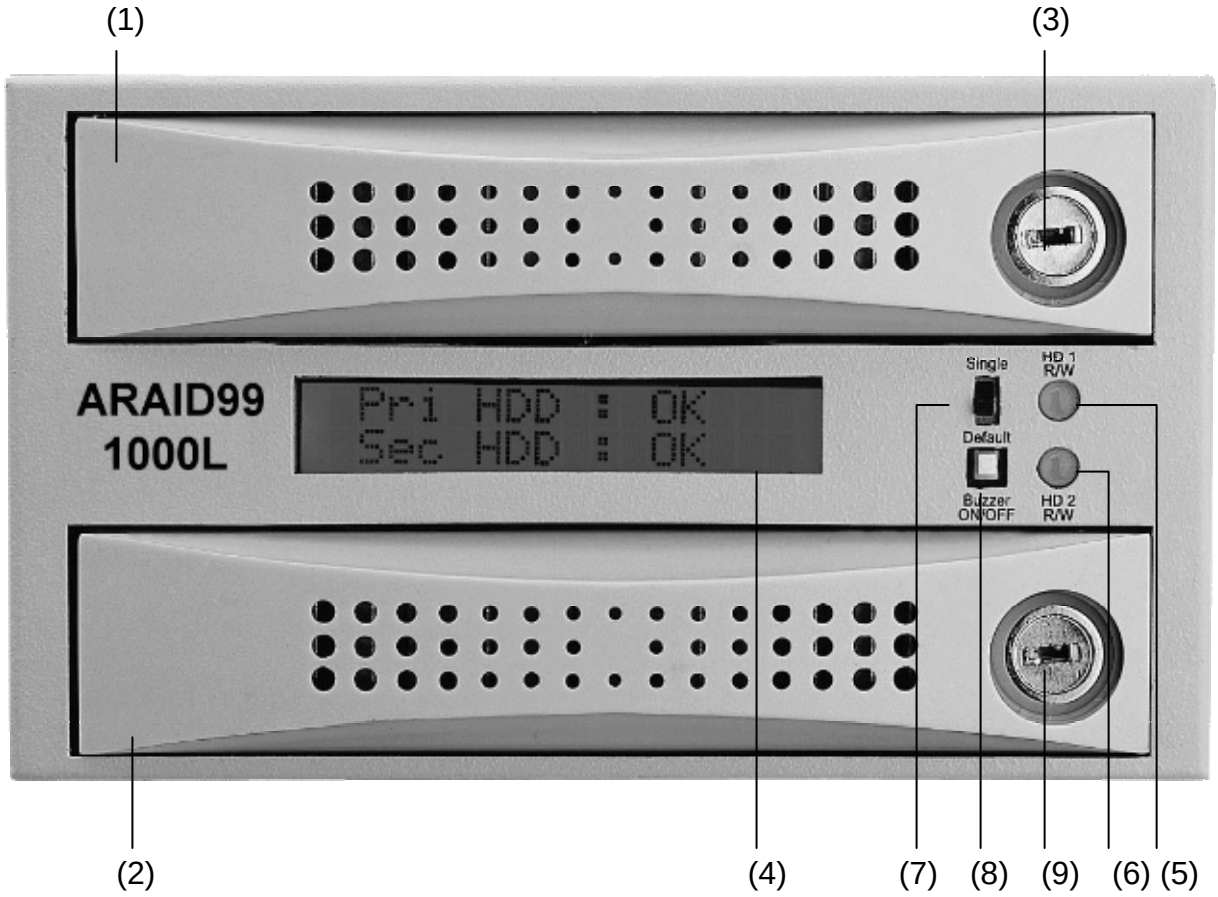
Always put this switch at "*Default*" position while using RAID 0 function.

DO NOT leave this switch at **Single** position, or you will risk all RAID 0 data lost.

Switch from **Single** to **Default** may cause disk mirror. Disk mirror will destroy all RAID 0 data.

Front view of ARAID99

Parts on Front Panel



(1) Tray 1

(2) Tray2

(3) Key Lock

(4) LCD

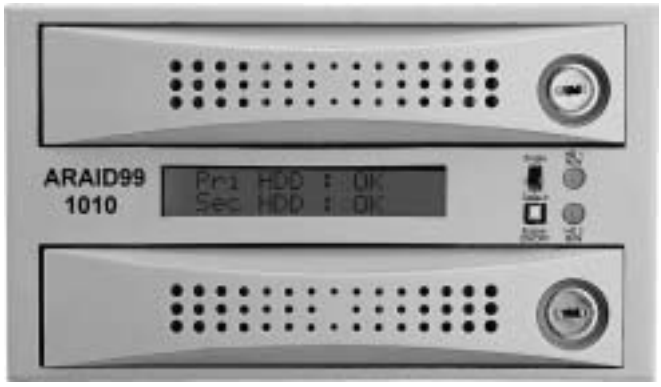
(5) HDD1 R/W LED

(6) HDD2 R/W LED

(7) Operation mode selector

(8) Buzzer ON/OFF Switch

(9) Key Lock



ARAID99 1000L Rear View and Jumper Settings

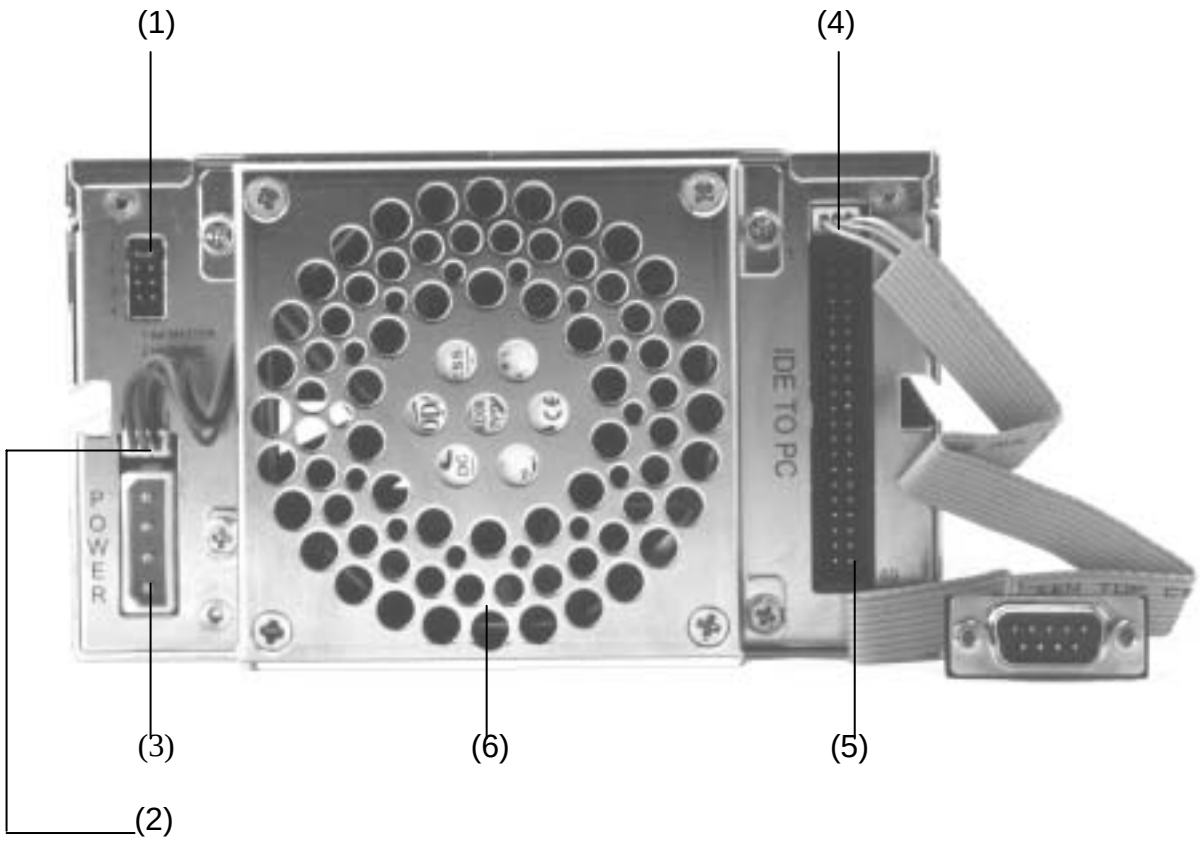
System defaults

Jumper Settings (Upper Left corner). For ARAID99 1000L only

Device Master/Slave mode setup:

MASTER (1 close，2 open) (default is: MASTER)

SLAVE (2 close，1 open)



Parts on rear panel of an ARAID99 1000L:

1. Master/Slave and RAID 0/RAID 1 setup jumpers
2. Fan and power connector
3. ARAID99 1000L power socket
4. RS232 port connector
5. IDE connector
6. 80mm fan

ARAID99 1010 Rear View and Jumper Settings

System defaults

Jumper Settings (Upper Left corner) For ARAID99 1010 only

Pin 1: Device MASTER/SLAVE mode setup.

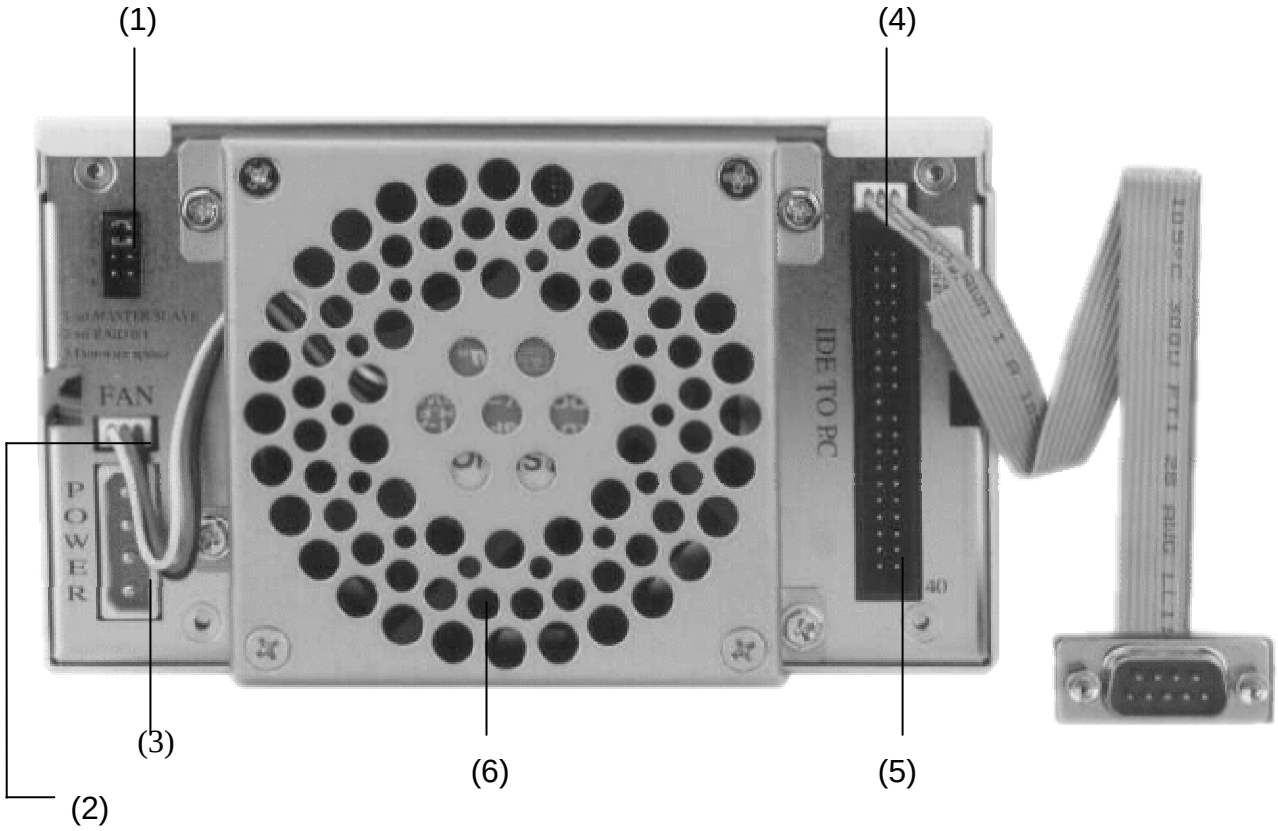
MASTER	(1 close) – *Default setup*
SLAVE	(1 open)

Pin 2: RAID Level setup jumper. For ARAID99 1010 only.

RAID 0	(2 close) – *Default setup*
RAID 1	(2 open)

Pin 3: Firmware Upgrade. (optional enforced mode). Same as ARAID99 1000L.

Pin 4: Reserved.



Parts on rear panel of an ARAID99 1010:

1. Master/Slave and RAID 0/RAID 1 setup jumpers
2. Fan and power connector
3. ARAID99 1010 power socket
4. RS232 port connector
5. IDE connector
6. 80mm fan

Qualifying a PC or motherboard to work with ARAID99 1000L and 1010

Note: ARAID99 has been designed with strict EIDE(Parallel ATA) command set and accurate timing for reliable and fast RAID on most operating systems and motherboards without installing any driver. Please refer to BIOS Setup in Q&A for details about optimizing ARAID99 on your PC. You may also contact your dealer or visit our website at www.accordance.com.tw for updated information. For ordinary cases, incompatibility issue may be caused by PC BIOS version support. Update a newest version of PC BIOS can solve most incompatibility or low performance problem. If none of them can solve your problem, please feel free to contact us by e-mail or fax.

Section 1: Test of basic compatibility

For ARAID99 1000L , 1010 RAID 1 Users

1. Prepare a PC, two to three identical hard drives, and the operating system.
2. Connect a hard drive (source disk) with OS to the target PC. (We strongly recommend Seagate, Maxtor, Western Digital or Hitachi/IBM hard drives with Windows 2000, and high quality US or Taiwan made motherboards)
3. Run ARAID99 1000L with single source disk (in upper bay) connected to the target PC (make sure that front panel operation mode switch is set to **Single** recently).
4. Then switch from **Single** to **Default**, install target disk in the lower tray, ARAID99 will automatically proceed the disk mirror function with **Auto Rebuild**.
5. Run ARAID99 1000L with both disks connected to the target PC.
6. If the PC smoothly runs with both disks, gently remove the target disk (or source disk) from the bay, normal disk READ/WRITE function will be unaffected.
7. If the PC, hard drives and OS run smoothly, your system has passed the basic compatibility test with ARAID99 1000L or 1010.

For ARAID99 1010 RAID 0 User

For ARAID99 1010 RAID0,make sure the front panel operation mode switch is set to **Default.**

1. Prepare a PC, two to three identical hard drives, and the operating system.
2. Install two identical hard disks into mobile rack 1 and 2, then put them into upper bay and lower bay respectively.
3. The PC will access ARAID99 as a single hard disk with double disk capacity. Either view from BIOS level or Windows utility.
4. Disk read/write performance can be expected approximate 35% improvement or more.

Section 2: Test of ARF compatibility (Only for RAID 1 Users)

1. Please refer to the ARF section for details of test of ARF compatibility. (See **How to use the A.R.F. of ARAID99 1000L**)
2. If your PC and peripherals run smoothly with RAF, your system has passed the RAF compatibility test with ARAID99 1000L or 1010 RAID 1.
3. If your PC has passed both tests, you have just got a fast, economical, safe and reliable routine real-time backup tool. Congratulations.

Installing ARAID99 1000L, 1010 (Hardware)

Please follow the instructions below to install ARAID99 on your system step by step:

Set ARAID99 to **MASTER** or **SLAVE** mode, default is **MASTER.**
For the optimal device compatibility and system reliability, we strongly recommend you to set ARAID99 to Primary Master and leave Primary Slave reserved, unless you are sure the other device can work smoothly with ARAID99 on the same IDE channel.

1. Turn the PC off.
2. Open the PC case.
3. Properly install ARAID99 on the case (at the two 5.25" bays)
4. Connect the 4-Pin power supply connector to ARAID99.
5. Connect EIDE port cable (from motherboard) to ARAID99. Our External models (say ARAID99 T1000LM, T1010) come with specially customized high quality EDIE cable, they can be properly connected from Motherboard IDE connector, the rear slot of PC enclosure, then to ARAID99 T1000LM, T1010.
6. Fix ARAID99 with screws and close the PC case.
7. Install Source disk on mobile rack 1 and Target disk on mobile rack 2 respectively.
8. Insert mobile rack 1 in the upper bay and mobile rack 2 to the lower bay on ARAID99. Lock racks with the key where necessary (Please put keys in a safe place.)

You have just completed installing ARAID99.
You may use ARAID99 as a single hard drive. All FDISK or FORMAT actions will be performed on both disks at the same. Some OS, such as Windows 2000 and XP, will automatically proceed with disk partitioning and formatting during the installation. Simply boot your system from CD-ROM to install the OS (make sure that the disk operation mode is set to Default. If it is in Single mode, ARAID99 will access to source disk only). Both disks will work concurrently in ARAID99, unless when errors occur in any of them.

Auto Rebuild Function (ARF) of ARAID99 1000L , 1010

The A.R.F. of ARAID99 recently supports the following OS with certified hard drives.
Please visit our website at www.accordance.com.tw , www.accordanceusa.com or send email to sales@accordance.com.tw , tech@accordance.com.tw for the latest information.

ARF-compatible O.S.

Windows Server 2003, 2000, NT4.0
Windows XP/ME/98/95
Dos 6.22
SCO UNIX System V
Linux (RedHat, Slackware, Debian, S.u.S.E., OPEN and Turbo, Mandrake)
Novell NetWare
Solaris
Mac OS 9 or above
IBM OS/2 Warp

◆ **Note1:**At present ARAID99 1000L and 1010 can support HDD capacity over 128GB. However, some operation system in IDE PORT can't support it (Before installing Service Pack for Windows 2000 system, for example). At this time, customer needs to add a PCI CARD which supports large capacity HDD at motherboard. The O.S. then will be able to detect it.

◆ **Note2:** ARF runs in the background when disk read/write tasks are running in the foreground.

ARF-compatible hard drives (examples) From 4GB to 250GB.

Maxtor family	i.e.: DiamondMax Plus 9 Series
Western Digital family	i.e.: WD1800BB/JB
Seagate family	i.e.: ST3120023A
IBM family	i.e.: IC35L180AVV207
Hitachi family	i.e.: IC35L090AVV207
Fujitsu family	i.e.: HDS722580VLAT20

How to use A.R.F. of ARAID99 1000L , 1010

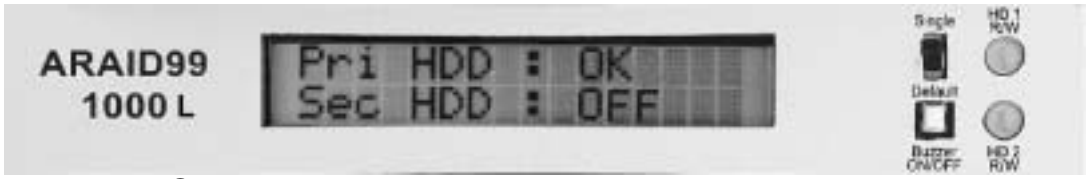
* Please use compatible hardware and O.S. for the best ARF performance. Make sure that different disk operation modes, Single and Default, will have different performance.

1. Boot your PC with ARAID99 1000L using one hard drive (usually installed on the Upper Bay), set front panel operation mode switch to **Default**.
2. After the OS (such as Windows series or RedHat Linux) is ready, change operation mode switch from **Single** to **Default** and thereafter install target disk onto the Lower Bay. (NOTE: If you install target disk without changing disk operation mode to Default, the system will report target disk as OFF on the LCD window.)
3. ARF will start automatically in a few seconds.
4. Rebuild rate expressed in percentage will be displayed on the LCD
5. The optimal auto rebuild rate is normally 30 ~ 80 GB/hour, or up to 120GB.
6. When disk auto rebuild is completed, LCD will show both disks are OK.

LCD screen after auto rebuild is completed.

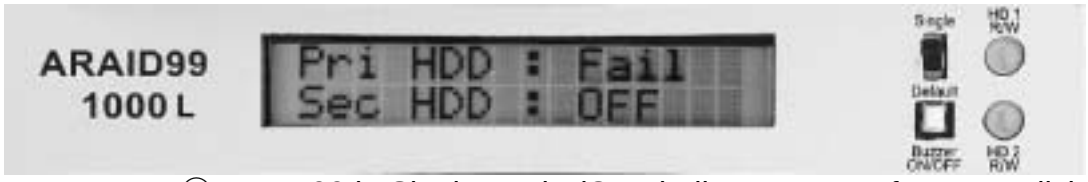
Booting system with one hard drive in Single mode

(1) If you want to boot the system with one hard drive (source disk), place source disk in the upper bay. ARAID99 can access to source disk only. LCD message is shown below.



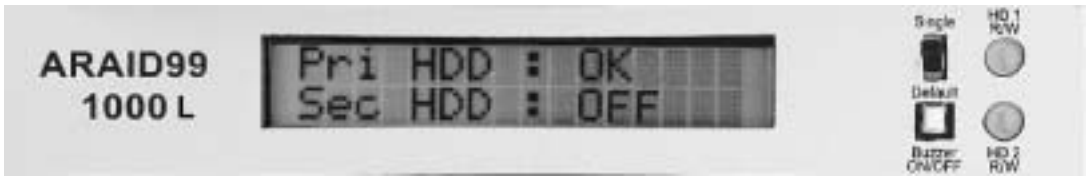
◎ ARAID99 in Single mode (OFF indicates power for target disk is OFF)

If you place source disk in the lower bay, the system will ask for a system disk. ARAID99 cannot access to source disk placed in the lower bay. LCD message is shown below.



◎ARAID99 in Single mode (OFF indicates power for target disk is off)

(2) Even both disks are installed, ARAID99 can only access to source disk, for the power of target disk is OFF. LCD message is shown below.

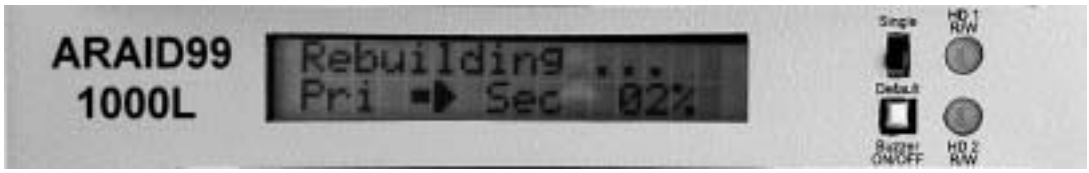


◎ARAID99 in Single mode (OFF indicates power for target disk is off)

Changing Single mode to Default mode (To perform a manual Mirror-On-Demand)

Target(Lower Bay) disk will be automatically rebuilt content from Source(Upper Bay) disk, when you change the operation mode switch from **Single** to **Default**.

LCD messages are shown below.



◎Change mode to **Default**.

- **Attention!** Do not remove source disk while disk rebuild is in progress to avoid data losses or system corruption, and subsequently disk error.

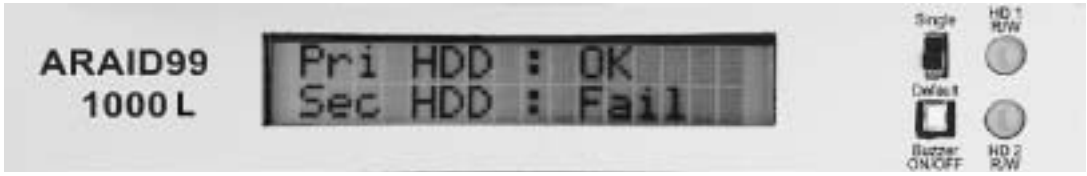
LCD message after auto rebuild is completed.

◎Change mode to **Default**

1. Booting system with one hard drive in Default mode

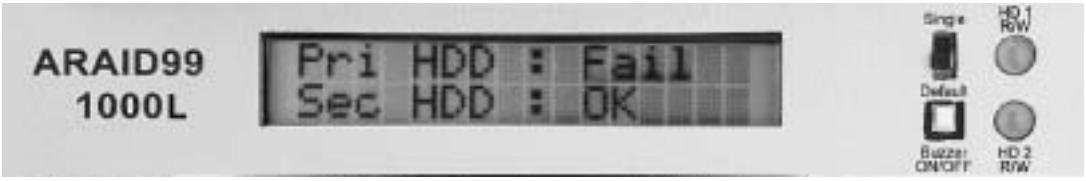
   (1) ARAID99 can boot the system with one hard drive and access to the hard drive placed in any bay. LCD messages are shown below.

   (a) LCD message when source disk is on the upper bay (HDD1):



◎ARAID99 in **Default** mode

(b) LCD message when source disk is on the lower bay (HDD 2):



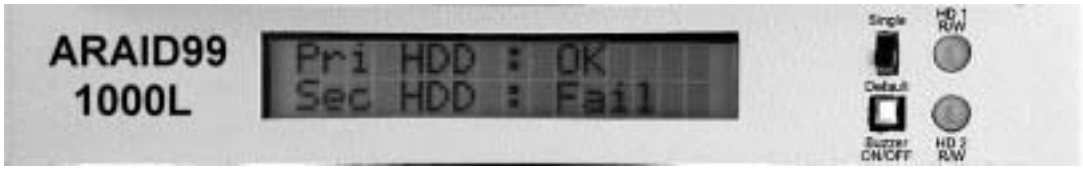
◎ARAID99 in **Default** mode

(2) When both disks are installed, ARAID99 will automatically detect source disk (Pri HDD) and boot the system. When source disk fails, ARAID99 will automatically boot the system from target disk (Sec HDD). The message displayed on the LCD is shown below.

(a) LCD message with both disks installed on ARAID99.

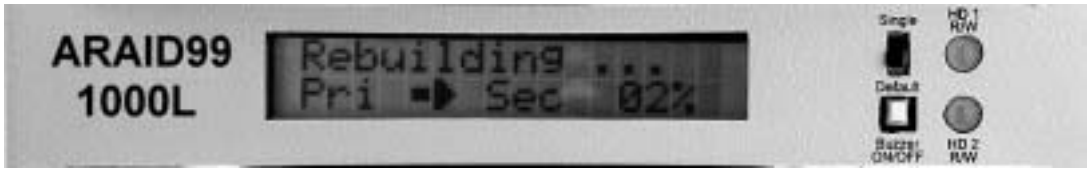
◎ARAID99 in Default mode

(b-1) LCD message with source disk only at system booting.



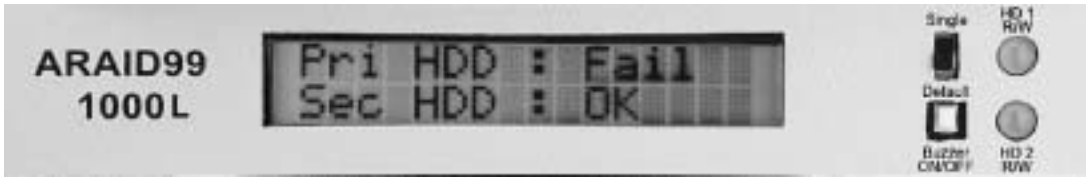
◎ARAID99 in Default mode

(b-2) LCD message with target disk is installed after system booting.



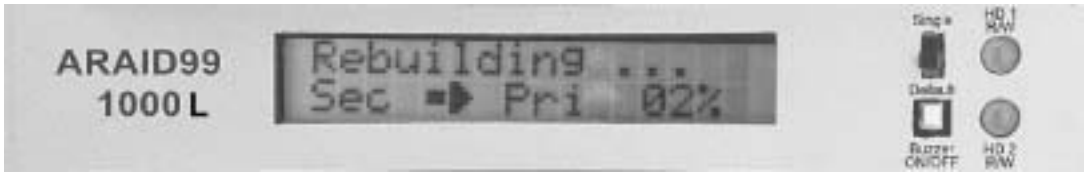
◎ARAID99 in Default mode

(c-1) LCD message with target disk only at system booting



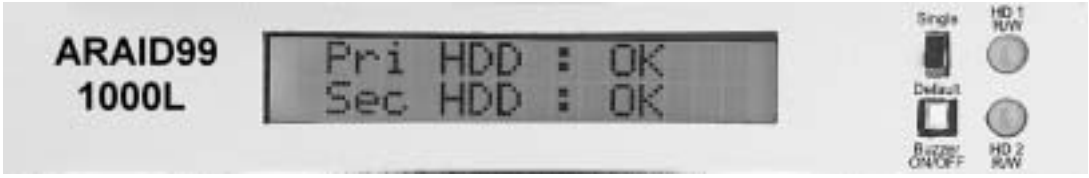
◎ARAID99 in Default mode

(c -2) LCD message after installing new source disk when system has booted with target disk.



◎ARAID99 in Default mode

LCD message and LED indication after disk rebuilding is completed.

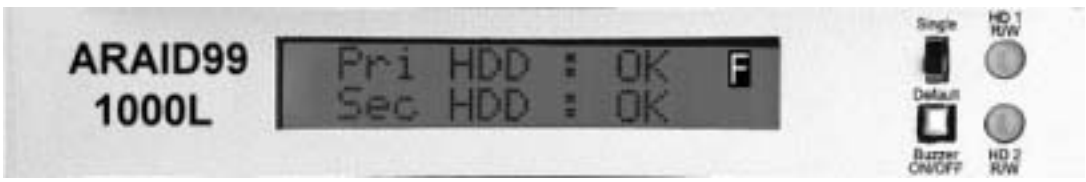


◎ARAID99 in Default mode

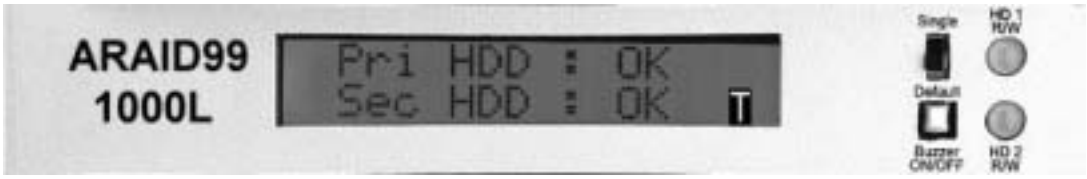
(d) Note

Do not change mode from **Default** to **Single** while both disks are operating. Target disk power source will be disconnected immediately and real-time backup (mirror) function will be terminated. ARAID99 can access to source disk (upper bay)only.

2. When fan stops or rotates very slowly, LCD will show F in reverse. Like diagram in the below:

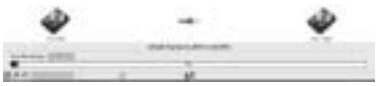


3. When temperature is higher than default setting(a preset number), LCD will show T. Like diagram in the below:



ARAID99 Management: AraidEye & SNMP Agent

4. **Local Monitoring ARAID99:** AraidEye for Windows or for Linux. These utilities allow users to see real time information about Hard Disk status, Fan speed and Temperature.



5. **Network Management of ARAID99:** Accordance provides SNMP Agent of ARAID99 1000L/1010 for Windows 2000/Server 2003/XP Professional or Redhat/SUSE Linux. It helps MIS people to manage/monitor hundreds of ARAID99 in a mid to large size network (To view and handle disk health status, fan speed and temperature.) It works with Accordance OpManager 4 or HP OpenView or IBM NetView – Network Management Softwares. Accordance SNMP Agent provides enterprise proprietary MIB and MIB II as well as event Traps.

AccordanceNMS OpManager4: (Network Management Software)

6. **Special Recommendation:** Accordance's **OpManager 4** is an easy to learn, powerful Network Management Software. All Accordance ARAID99 1000L/1010 MIB and Traps have been built in Accordance OpManager 4. To monitor hundreds or thousands of ARAID99, It is a great plug and play(install and see) tool for MIS experts.

   Welcome to download one month free evaluation. Or visit www.accordance.com.tw .

ARAID99 1000L Family Products

1. ARAID99 T1000LM / T1010 (External model)

(1) Front view

(2) Rear view

1. Power ON/OFF Switch
2. AC 110 ~ 220 V Power connector
3. External EIDE connector
4. RS-232 connector (DB9)

(3)Special made Cables

Special IDE Cable 1 Special Cable 2

Special Cable 1: Connect IDE port of motherboard to the rear slot of PC

Special Cable 2: Connect from PC enclosure to an External model ARAID99 T1000LM or T1010

2. ARAID99 T1000LM / T1010 for 1394 or USB 2.0

(1) Front view

(2) Rear view

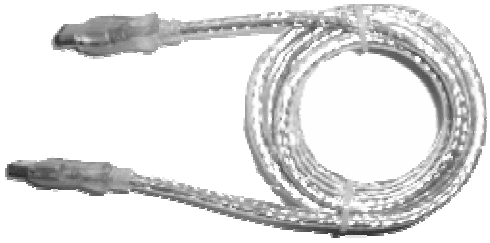
1394 Interface

(1) 1394 connector
(2) Power On/Off Switch
(3) AC 110~220V power connector
(4) RS-232 connector

USB Interface

(1) USB connector
(2) Power On/Off Switch
(3) AC 110~220V power connector
(4) RS232 connector

(3)USB/1394 Cable



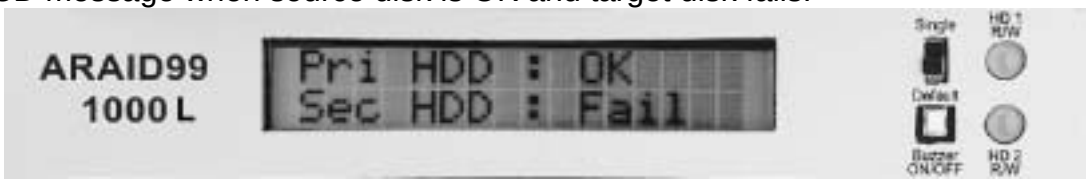
1394 External Cable

USB External Cable

Hard drive failure and troubleshooting guide (For RAID 1 only)

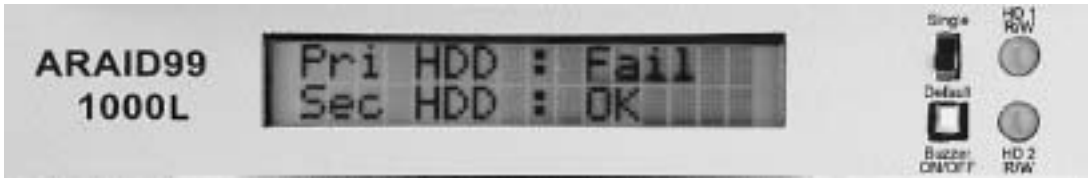
1. LCD message when both disks are operating smoothly.

2. LCD message when source disk is OK and target disk fails.



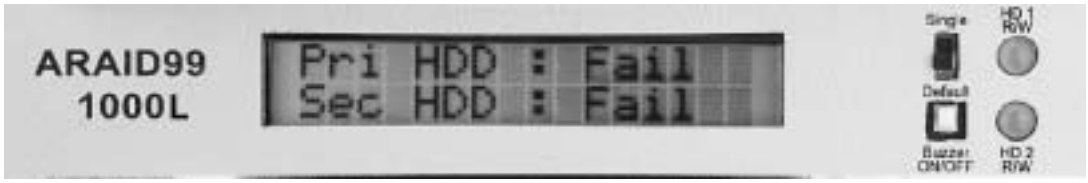
ARAID99 will maintain read/write function on source disk, but the RAID function is terminated. Replace a new hard disk for target disk to resume disk mirror function.

3. LED message when source disk fails and target disk is OK.



ARAID99 will maintain read/write function on target disk, but the RAID function is terminated. Replace a new hard disk for source disk to resume disk mirror function.

4. LED message when both disks fail.



No disk read/write function is available. Replace disks immediately to resume operation.

Notification: Please always replace brand new disks with identical models or models in same siries with larger capacity from the same manufacturer.

Q&A

PC BIOS SETUP

Q1: What type of HDD should be selected in the BIOS to ensure smoothly operation of ARAID99?

A1:

1. If you are using two identical hard drives (same brand and model) in ARAID99, select HDD TYPE: AUTO.
2. If the new drive is the same brand but with a higher capacity than the original drive (or source disk), select HDD TYPE: AUTO.

   Case study: Please also refer to section: Replacing and Upgrading Hard Drives for ARAID99 1000L

Q2: If I don't have a UPS, what should I do when the power supply fails while auto rebuild is in progress?

A2: Please follow the instructions below when a power failure occurs during auto rebuild is in progress.

Run RAF again: first, make sure that the PC has been turned off; second, remove the target disk from ARAID99 1000L; third, place the source disk in the upper bay; fourth, restart the system with the source disk and proceed with auto rebuild again.
(Make sure that the disk operation mode should be Default)

Q3: How to recover from affected hard disk by virus? (For ARAID99 1000L, 1010 RAID 1 Users)

A3: Method 1: Take Grand Father – Father –Son, multiple generation full disk Backup advice.

Use ARAID99 on the fly Disk hot swap and Disk Auto-rebuild function, duplicate a clone disk everyday or once a week. Keep those different generation disks in safe place. When two disks in an ARAID99 were affected by virus, remove them and find a latest and unaffected disk to get the system back to back in munites.

Method 2: Take Accordance proprietary Manual Mirror-On-Demand function from front panel "Operation mode switch" to make disk duplication whenever you need. While system is clear and not-affected, make clone disks and keep them in safe place.

Replacing and Upgrading Hard Drives

Q4: What should I do if I need to replace a defective hard drive?

A4:

1. It's always perfect if you can replace a defective hard drive with an identical new drive. Just run auto rebuild without making changes to any setting.

2. If only models with larger capacity from the same manufacturer are available, make sure to to select HDD TYPE to USER in the BIOS and enter the data of the origina disk, then place the source disk in the upper bay before starting the system and running disk auto rebuild.
   Note: the number of heads of the new drive must the be the same as that of the original one (16 heads in general).
   If you select HDD TYPE to AUTO in the BIOS and place the new hard drive with larger capacity in the upper bay, the system will be unable to start and data on the disk will be lost.

3. If you want to start the system with the new drive after rebuild, make sure to reconfirm the HDD TYPE in the BIOS, and the new drive cannot be used together with the original drive.

4. **CASE STUDY 1:**
   A. XX used two Western Digital WD800BBRTL (80GB) hard drives on ARAID99 1000L in the beginning.
   B. One was out of order in six months, so XX bought a new WD1200BBRTL (120GB) to work with the second WD800BBRT. Both drives were considered as WD800BBRTL.
   C. The second WD800BBRT was out of order some months later. XX may expand disk capacity if he used Microsoft Windows O.S. by duplicating data on WD1200BBRTL to a larger drive which can preserve the capacity which is different from the original drive, though both disks cannot work together in ARAID99.

5. **CASE STUDY 2:**
   A. YY used two IBM DTLA307045 (45GB) hard drives on ARAID99 in the beginning.
   B. YY replaced a defective IBM DTLA307045 with a DTLA307060 (60GB) hard drive a few months later.
   C. YY also replaced another defective IBM DTLA307045 with a DTLA307075(75GB) hard drive some months later. Now, both DTLA307060 and DTLA307075 are working on ARAID99. YY must make sure that DTLA307060 is treated as the source disk and DTLA307075 as the target disk. Both disks are treated as DTLA307045.

   You can use ARF to mirror a disk in any of the above cases.

Accordance Customer/Dealer Support Request Form

Product **Q**uestion **R**eport

ARAID99 Series

No. yymmdd: Date: yy/mm/dd:

Company Name: Your Name:

Accordance Product Name & Model	
Firmware Revision	
Manufactured Date or Purchase Date	

Equipment & Environment	
PC or Motherboard Brand & Model (**)	
BIOS (**) Phoenix or Award or AMI	
Chipset (**)	
HDD 1(**) Brand/Model/Series number	
HDD 2(**) Brand/Model/Series number	
IDE operation Mode (*)	
CPU	
RAM	
OS (**) Version of Windows or Linux or…	
Benchmark / Application if available	

(**) Mandatory **(*)** Optional, but it helps to identify problem.

Test Procedure & Notification	
1	
2	
3	
…	

Symptom	
1	
2	
3	
…	

Thank you for reading this manual.

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