



# **3.5-inch Mirror Drive SCSI MODEL AXRD-N Series**

## **User's Manual**

P/N A203041

**Revision 1.1e**

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# Introduction

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Thank you for selecting the **3.5-inch Mirror Drive SCSI Model AXRD-N Series**. This manual describes how to install, operate, and maintain your **Mirror Drive**, and will help familiarize you with the **Mirror Drive** and its features.

## NOTICE

Please be sure to read the user's manual before using your **Mirror Drive**. This manual provides information on and describes appropriate handling procedures and configurations for all product functions. This information will allow the user to take full advantage of the **3.5-inch Mirror Drive SCSI Model AXRD-N Series**.

In the unlikely event you experience problems, the manual provides helpful information and instructions.

## RETAINING PACKAGING MATERIALS

The original packaging materials protect the **Mirror Drive** from damage during transportation. After unpacking the **Mirror Drive**, please retain the packaging materials in case you need to ship the **Mirror Drive** for repairs.

This product is sealed in an antistatic and moisture-proof bag before shipping. Open the bag only when about to begin setup.

## RECORDING THE PRODUCT NAME, VERSION, AND SERIAL NUMBERS

Before installing the **Mirror Drive** on the host computer, please jot down the model name, version, and serial numbers.

Section "2.1 Part Names" shows the label location of model name, version, and serial number.

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# To ensure safe use of this product:

This user's manual uses the following symbols to highlight important points related to safe use of this product. Please observe all safety information indicated in this way.

## SAFETY SYMBOLS

To protect against personal injury and product damage, the following symbols are used throughout this manual to highlight safety information.

	<b>Warning</b>	Indicates a potentially hazardous situation that may result in death or serious injury to the user or severe damage to the product.
	<b>Caution</b>	Indicates a potentially hazardous situation that may result in serious injury to the user or damage to the product.
	<b>Important</b>	Indicates important information, failure to observe which may result in improper product function.

## WARNING / CAUTION LABELS

Labels with black lettering against a yellow background affixed either to the exterior or interior of the product are **Warning** or **Caution** labels that provide important safety information. Observe all directions given on these labels.

In the case of appearing **Warning** or **Caution** labels in addition to this user's manual, be sure to follow the directions on it.

 **Warning**

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- If you detect any abnormal conditions, such as smoke or foul odors, immediately shut off power for the host computer.
- If any foreign materials (metals, water, liquids, etc.) enter the **Mirror Drive**, immediately shut off power for the host computer.
- Do not use the **Mirror Drive** in hot or damp locations. Using this product in hot or damp locations may result in fire, electrical shock, or damage.
- Do not disassemble or modify this product. ADTX cannot guarantee the performance or safety of any product that has been repaired by the customer or by an unauthorized third party. Repairing by yourself may result in fire, electrical shock, or damage.
- Before connecting or disconnecting the interface connector, shut off power for the host computer and any connected devices. To avoid placing excessive stress on the printed circuit board of the **Mirror Drive**, push or pull the connector only along the axis perpendicular to the board. Avoid bending the connectors. Avoid using undue force to connect or disconnect connectors or cables, which may result in fire, electrical shock, or damage.

## **Caution**

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- Do not use the **Mirror Drive** in locations subject to vibration or shock exceeding the specified values. Use of the **Mirror Drive** in such locations may result in malfunctions or disk failure.
- Do not use the **Mirror Drive** in locations or circumstances subject to condensation. Rapid temperature changes may cause condensation to form on the **Mirror Drive** itself. If you believe condensation has occurred, leave the **Mirror Drive** to acclimate to the new environment. Avoid using the **Mirror Drive** until it reaches the new ambient temperature.
- Do not place the **Mirror Drive** near electronic components with strong electromagnetic fields, such as televisions or loudspeakers.  
Use of the **Mirror Drive** in such locations may result in malfunctions or disk failure.
- Turn power off before moving the unit with the **Mirror Drive**. This will prevent damage to the HDD and other internal components of the **Mirror Drive**.
- Do not turn power on immediately after turning power off, or turn power off immediately after turning power on. Leave at least 20 seconds between successive operations involving powering on or off. This will help prevent damage to or malfunction of the mounted HDD. The HDD motor spindle requires about 20 seconds to stop rotating and come to a full rest. In addition, if removing the correctly functioning drive unit for replacement, turn power off and wait at least 20 seconds.
- Do not remove the correctly functioning drive unit while power is on. The **Mirror Drive** will detect it failed if the drive unit is removed. Removing the no failed drive unit may damage the disk heads and platter inside the HDD.
- Store the **Mirror Drive** in the antistatic bag. Leaving this product unpacked and unused for a long periods may lead to malfunctions or disk failure.
- Avoid applying excessive pressure to the covers of the drive unit, which may lead to malfunctions or disk failure.
- Do not touch the **Mirror Drive**, when the **Mirror Drive** is powered.

## Important

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- Back up all important data stored on the **Mirror Drive** to a suitable storage medium, such as tape drive or MO drive. This product's mirroring technology prevents data loss even if one drive unit fails. If two drive units fail at the same time or if a non-redundant part fails, data loss may still occur. Additionally, accidental deletion of data or equipment damage may also result in data loss.
- Do not block the ventilation openings of HDD. Lack of the cooling airflow may lead to hard disk drive failure.
- Wait at least 10 seconds after the access indicator has stopped flashing before initiating the shutdown procedure for your host computer. The **Mirror Drive** uses cache memory to store data frequently accessed from the HDD. Except in emergencies, you must follow the operating system's shutdown procedures. Failure to do so may result in loss of data stored in cache memory.
- Never remove or exchange the drive units, except to replace controller units or drive units, since the **Mirror Drive** controls drive units by using its serial number. Thus, removal or replacement may result in failure to boot up the host computer.
- When installing it in the host computer's bay, mount the **Mirror Drive** securely using the mounting screws provided (0.49 Nm recommended).
- In the event of a drive unit failure, it may take up to 25 seconds to start up the **Mirror Drive**. The host computer may yet fail to recognize due to BIOS timeout settings.

# Handling Static-Sensitive Devices

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To prevent damage to components from static electricity, observe the following precautions when handling this product.

- Before handling the **Mirror Drive** or other static-sensitive devices, touch a metal object, such as the metal enclosure of the host computer, to discharge any static electricity from your body.
- Always handle components carefully. Never touch exposed circuitry.
- When replacing controller units or drive units, or when moving the **Mirror Drive**, place the antistatic bag in which this product was shipped on a flat, level surface. Work on the **Mirror Drive** in this area.



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# **1. Introducing the 3.5-inch Mirror Drive**

Incorporating two 2.5-inch disk drives, the ADTX **3.5-inch Mirror Drive** uses mirroring technology to safeguard data and to provide uninterrupted operations.

Since the host computer will recognize the **Mirror Drive** as a standard SCSI HDD, installing the **Mirror Drive** simply involves connecting it to a SCSI cable from the host computer.

## **1.1 Features**


- In the event that one of the drive units fails, the **Mirror Drive** will continue to function, maintaining data integrity. When the failed disk is replaced with a new replacement disk, data rebuilding will begin automatically.
- The **Mirror Drive** is provided with large cache memory capacity for high performance.
- Based on the industry standard SCSI-3 interface, the **Mirror Drive** can be used like any other standard SCSI HDD. This product requires no unique device drivers and is compatible with most operating systems. Moreover, it will be easily daisy-chained to a series of existing SCSI HDDs or devices.
- Mirroring technology implemented via hardware reduces system overhead.

## **1.2 Mirroring**

Mirroring technology involves writing data to two drive units simultaneously. If one drive unit fails, data is written to and read from the other drive unit.

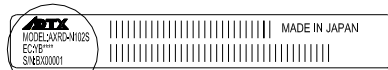
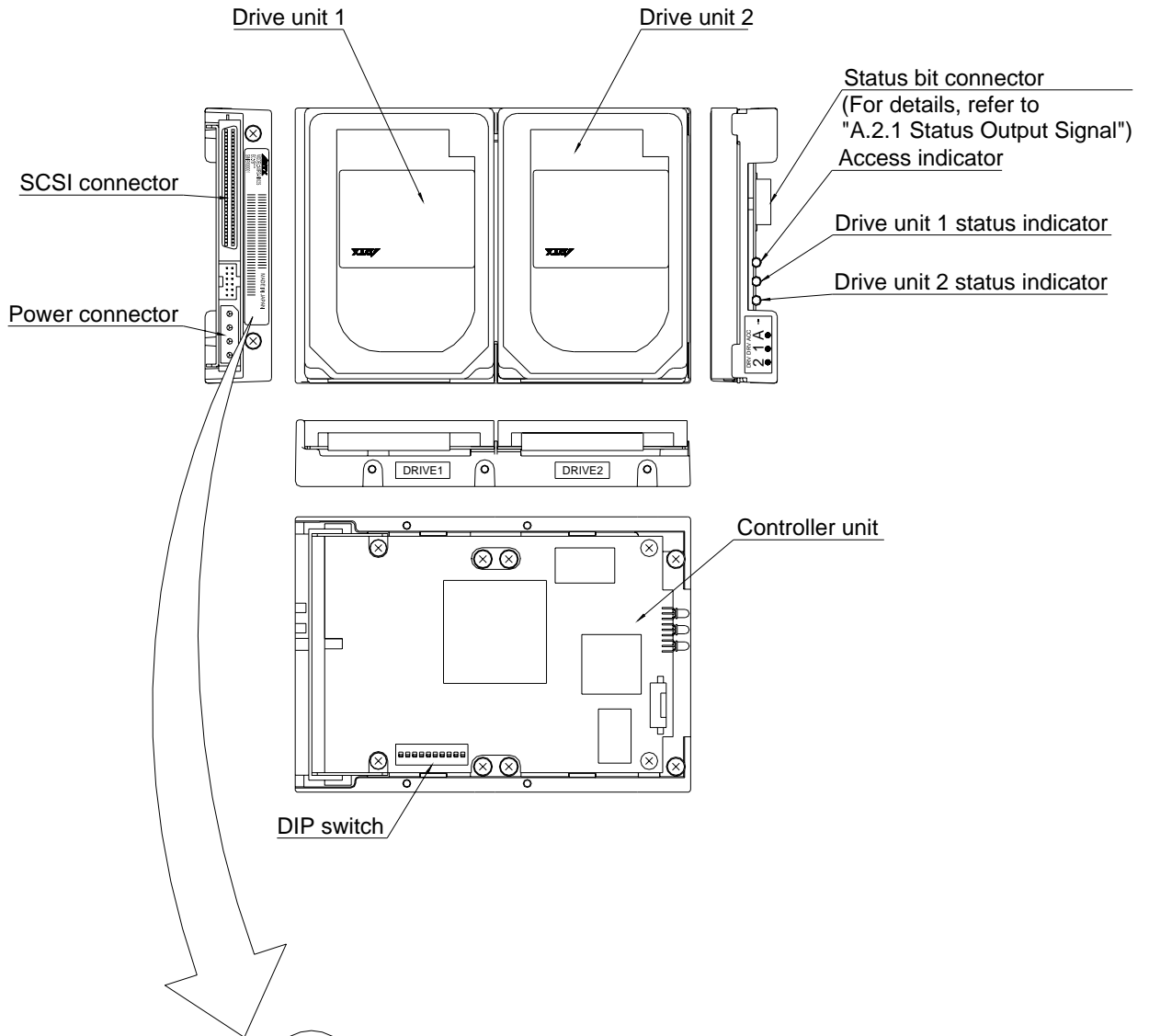
## **1.3 Cache Buffer Function**

The **Mirror Drive** is equipped with large cache memory capacity. With write cache mode enabled, the **Mirror Drive** will signal completion of command processing to the host computer when data is written to cache memory. The performance will be improved by writing accumulated data to the HDD while the host computer does not access to the **Mirror Drive**. Write cache mode is enabled via DIP switch. The default setting at shipment is ON (enabled).

	<b>Important</b>	Always observe the shutdown procedure specified for the host computer operating system. In emergencies, wait at least 10 seconds to be sure both the access indicator and the drive status indicator have stopped flashing before shutting off power. Turning off power while the access indicator or the drive status indicator is on may result in loss of data still residing in cache memory.
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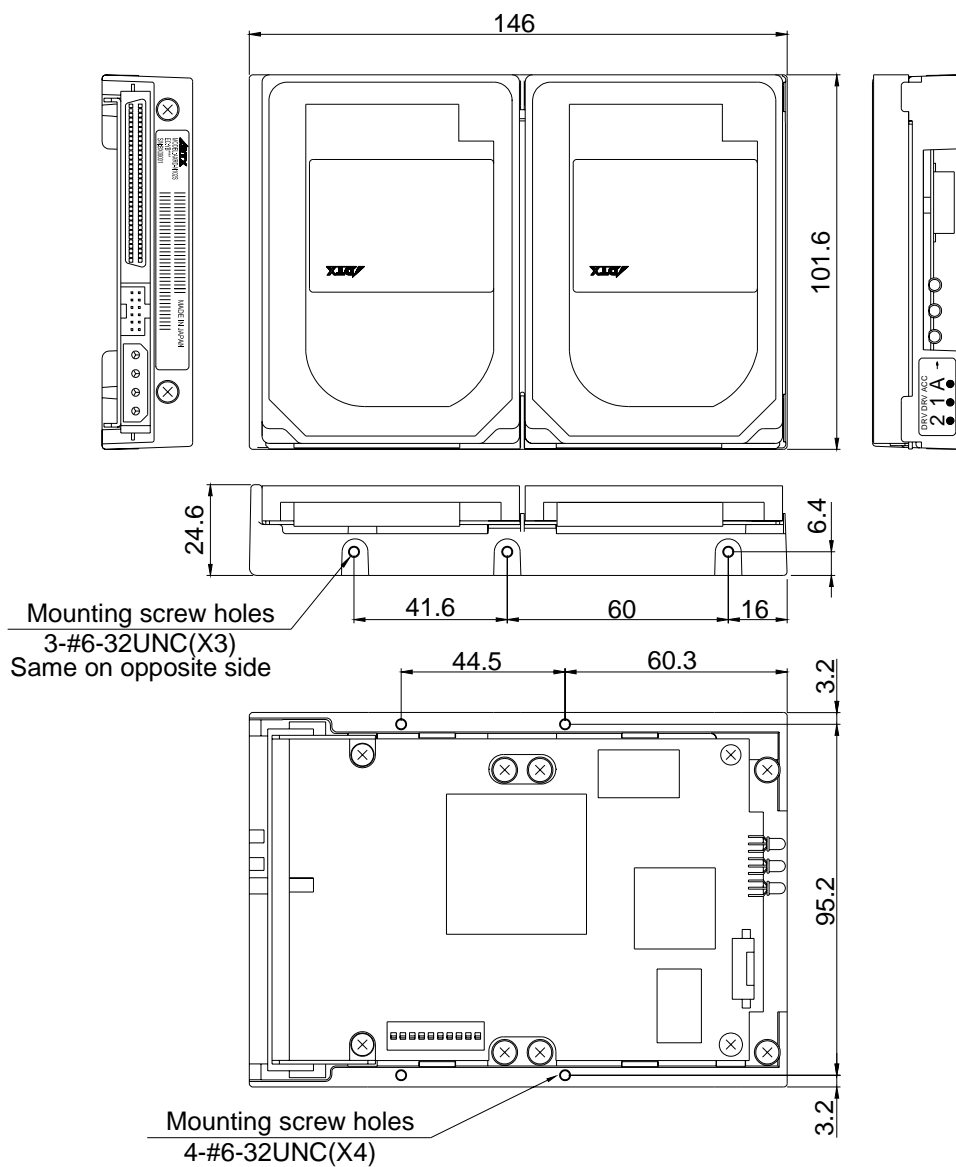
## 2. External Dimensions

### 2.1 Part Names



MODEL:AXRD-N102S — Model name  
 EC:YB\*\*\*\* — Version  
 S/N:BX00001 — Serial number


## 2.2 External Dimensions



## 3. Mounting in the Host Computer

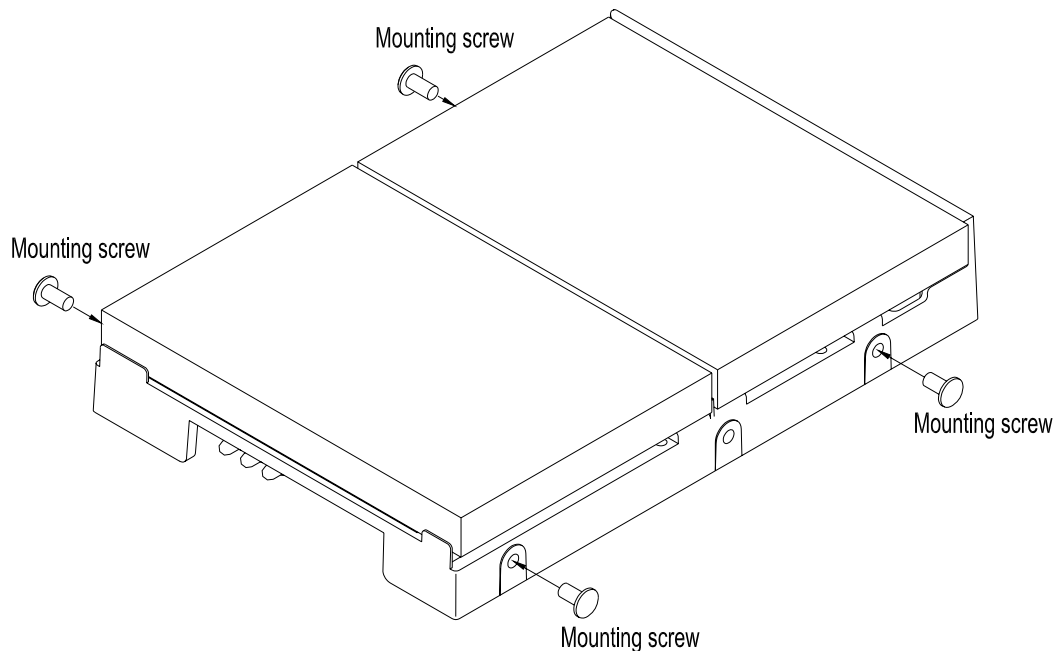
### 3.1 DIP Switch Settings


Before mounting it in your host computer, check to confirm the DIP switch settings for the **Mirror Drive**. Refer to "4. Settings" for the correct configurations of the DIP switch. For default settings, refer to "Appendix C Factory Default Settings."

	<b>Caution</b>	Before setting DIP switch or connecting cables, make sure the power supply of the host computer has been turned off.
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### 3.2 Mounting in the Host Computer

When mounting in the host computer, use the attached mounting screws and the specified mounting holes. The mounting screw hole locations are shown in "2.2 External Dimensions." An example of a mounting screw hole location is shown below.

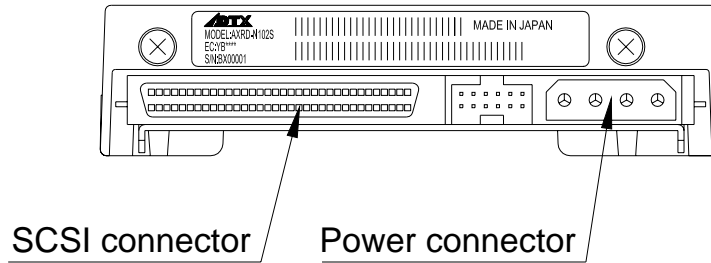



	<b>Caution</b>	When installing into the host computer, provide sufficient cooling in order to ensure that the surface temperature of the drive unit remains below 60 °C.
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### 3.3 Connecting Cables

<1> Connect a 4-pin internal power cable, supplied DC +5 V.


<2> Connect an internal SCSI cable to the host computer or to other existing SCSI peripherals. If the **Mirror Drive** is the last device in the SCSI chain, install the SCSI terminator to the cable.



	<h2>Caution</h2>	<p>If the <b>Mirror Drive</b> is of the last device in the chain or is the only SCSI device in use, attach a terminator to the SCSI cable. Using the <b>Mirror Drive</b> without the terminator will result in malfunctions or failure.</p>
		<p>We strongly recommend using the shortest possible SCSI cable that complies with the SCSI-3 standard.</p>

### 3.4 Turning on Main Power

Turn on power for the host computer and confirm that the host computer recognizes the **Mirror Drive**.

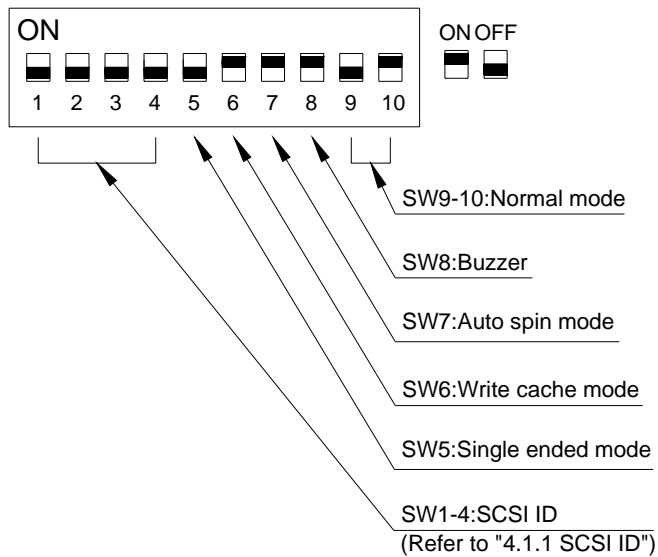
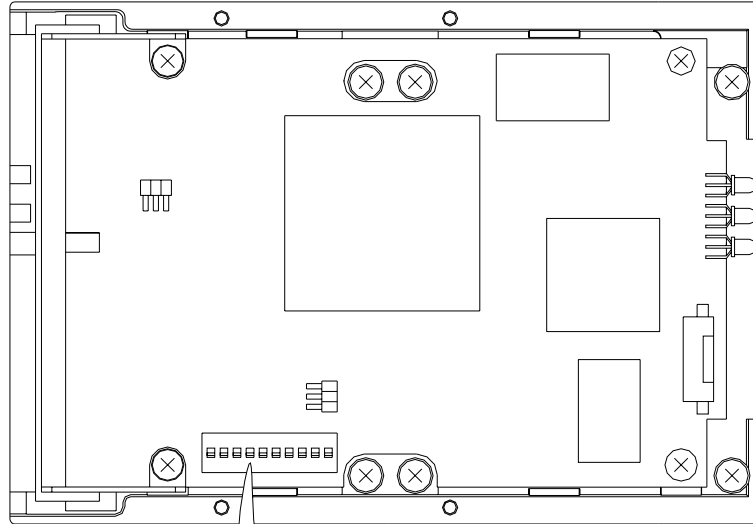
	<h2>Caution</h2>	<p>Before turning on power for the host computer, confirm that SCSI IDs are properly set and that the SCSI cable and the power cable are correctly connected.</p>
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# 4. Settings

## 4.1 Configuration DIP Switch

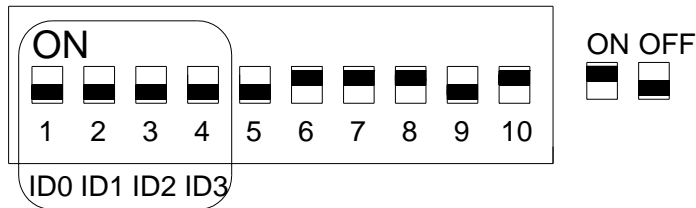
Setting DIP switch can be used to select SCSI ID, single ended mode, write cache mode, auto spin mode, buzzer. Setting DIP switch is located in the bottom (10-bit DIP switch).



	<h3>Caution</h3>	<p>Before setting DIP switch, make sure the power supply for the host computer has been switched off.                  (The above the diagram is set to the factory shipping defaults.)</p>
		<p>Do not change switches 9, 10.</p>

### 4.1.1 SCSI ID

Select a SCSI ID (from 0 to 15) using binary DIP switch SW1 through SW4. If you change the default value, make sure the new SCSI ID is unique.



The setting shown above sets the device SCSI ID to "0."

SCSI ID	ID0	ID1	ID2	ID3
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON


### 4.1.2 Single Ended Mode


If this is enabled (set to "ON," the down position), the SCSI interface of the host computer will be set to single ended mode, regardless of settings at the host computer. If this setting is disabled (set to "OFF"), the mode set will be LVD or single ended, depending on the status of a host computer or other SCSI peripherals.

### 4.1.3 Write Cache Mode

This setting sets the write cache mode. If set to the Up position for "ON," the **Mirror Drive** will signal completion of command processing to the host computer when data has been written to cache memory. If set to the Down position for "OFF," the **Mirror Drive** will signal completion of command processing to the host computer when data has been written to the drive unit.

Be sure to follow the shutdown procedure specified for the host computer operating system.

	<p><b>Important</b></p>	<p>Always observe the shutdown procedure specified for the host computer operating system. In emergencies, wait at least 10 seconds to be sure both the access indicator and the drive status indicator have stopped flashing before shutting off power. Turning off power while the access indicator or the drive status indicator remains lit may result in loss of data residing in cache memory.</p>
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	<p><b>Caution</b></p>	<p>If the host computer is running either Windows 95, Windows 98, Windows NT, Windows Me or Windows 2000, both of which switch off the power supply in synchrony with the shutdown procedure, be sure to set the write cache mode to "OFF." Setting write cache mode to "ON" while running either operating system may lead to data loss.</p>
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### 4.1.4 Auto Spin Mode

This setting is for automatically rotating the motor spindle of the HDD when power is turned on. If this setting is disabled (set to "OFF," the down position), the peak current at the start of the **Mirror Drive** may be reduced somewhat, since the spindle motor will not begin rotating at the same time that the host computer starts up.


In this case, have the host computer issue the START UNIT COMMAND to the **Mirror Drive** when power is turned on.

### 4.1.5 Buzzer

If set to the Up position for "ON", a buzzer will sound if any error is detected. In the event of a drive unit failure, the buzzer will continue to sound until the failed drive unit is replaced. While the buzzer switch can be used to stop the buzzer, the setting can only be disabled after the failed drive unit has been replaced.

### 4.1.6 Normal Mode ( Do not change )

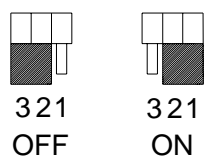
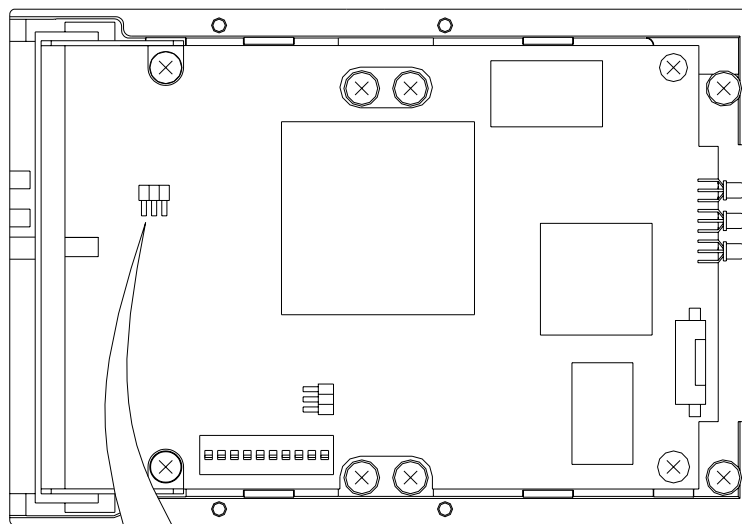
DIP switch settings switches (9,10) are set to mirror mode. Do not change this setting.

	<p><b>Important</b></p>	<p>Resetting normal mode will result in loss of data.</p>
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## 4.2 Configuration Jumper

### 4.2.1 Jumper 1

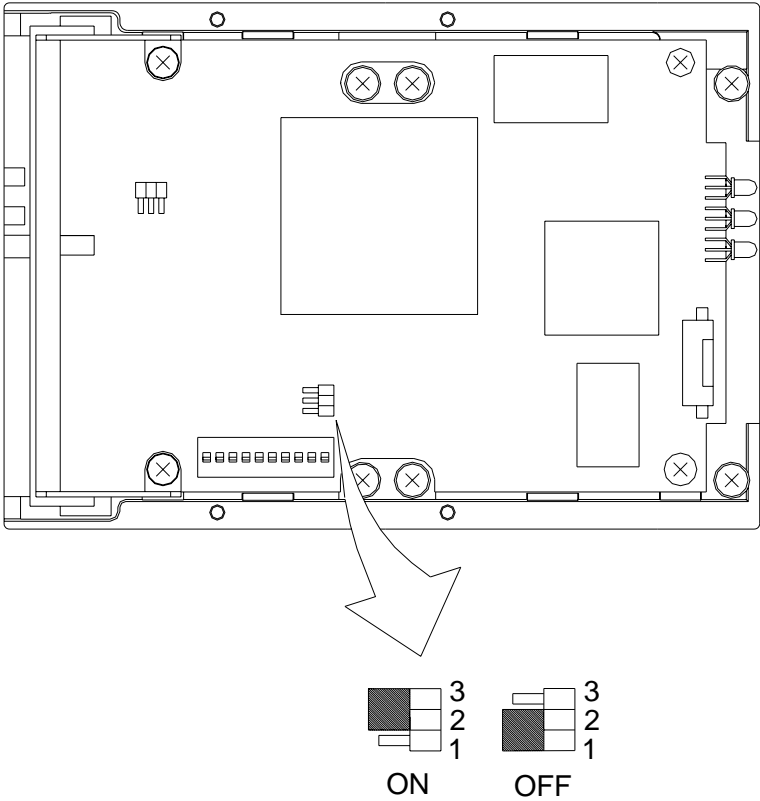
TERMPWR setting by this switch. Jumper 1 is located in the bottom. (Jumper pin).



	<b>Caution</b>	Always set this jumper 1 to ON.
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### 4.2.2 Jumper 2

Jumper 2 is located in the bottom. (Jumper pin).



	<b>Caution</b>	Always set this jumper 2 to OFF.
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# 5. Status Display

## 5.1 Indicator

The status of the controller unit and drive units is displayed by the indicator on the front.

### 5.1.1 Access Indicator


Access	Green	<1> Power is on. <2> Normal operation. Any of the above.
	Orange	An error has occurred in the controller unit.
	Orange flashing	<1> Both drive units have failed, or the drive units may not be properly inserted (if both status indicators are out ). <2> The user has mistakenly replaced the correctly operating drive unit, not the one that has failed (if both status indicators are green light to same time). <3> Data rebuilding is in operation (with copy to the target drive unit indicated by the green light). Any of the above.

### 5.1.2 Drive Status Indicator

Drive unit 1	Green	Data rebuilding copied to drive unit 1 is operation. (1)
	Orange	<1> Drive unit 1 has failed. <2> Drive unit 1 has reset. (2) Any of the above.
Drive unit 2	Green	Data rebuilding copied to drive unit 2 is operation. (1)
	Orange	<1> Drive unit 2 has failed. <2> Drive unit 2 has reset. (2) Any of the above.

**Note:**

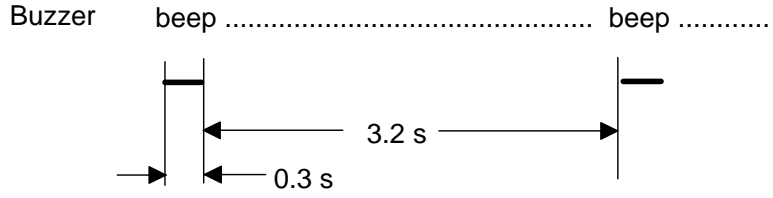
- (1) Drive Status Indicator will go out after data rebuilding.
- (2) In the event of reset, the buzzer will not beep.

	<b>Important</b>	If the drive status indicator light orange, immediately replace the specified drive unit. Leaving the <b>Mirror Drive</b> with a failed drive unit will result in data loss if the other drive unit fails.
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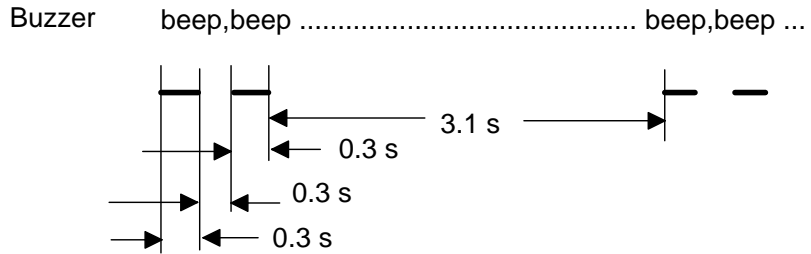
### 5.1.3 Buzzer

If this is set to "ON," in the event of a failure, the buzzer will beep at the interval specified below.

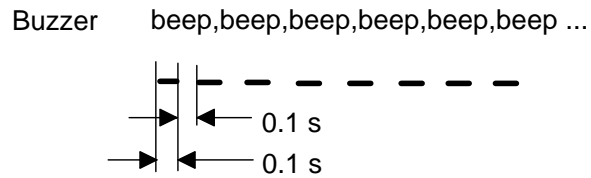
When drive unit 1 has failed



When drive unit 2 has failed

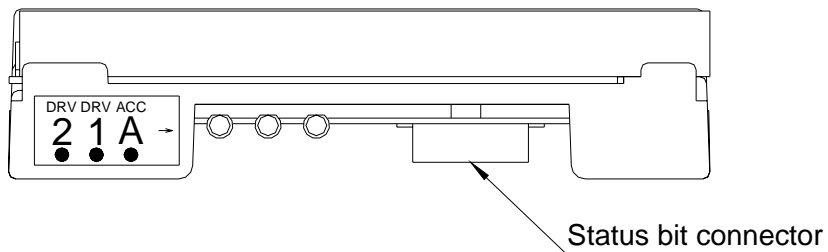


When both drive units have failed



## **5.2 External Output Signal**

The output signal can be transmitted to monitor the detected status externally. The connectors for these signals are shown in the figure below.



### **5.2.1 Status Output Signal**

Status output is transmitted as a 3-bit signal.  
For detail layouts and electrical specifications for the status bit connector pins, refer to "Appendix A.2.1 Status Output Signal."



## 6. Removal and Replacement

If the **Mirror Drive** fails, the access indicator will light or flash orange, while the drive status indicator will light orange.

If buzzer switch is enabled, the buzzer will continue to sound an alert.

Determination of removal and replacement must account for these status/failure indications.


### 6.1 Troubleshooting


Access indicator	Drive status indicator		<b>Mirror Drive</b> status and measures.
	Drive unit 1	Drive unit 2	
---	---	---	Normal operations.
Orange flashing	OFF	Green	Rebuilding data from drive unit 1 to drive unit 2. (Normal operation)
Orange flashing	Green	OFF	Rebuilding data from drive unit 2 to drive unit 1. (Normal operation)
---	Orange	---	Drive unit 1 failure. Replace the drive unit 1 with a new drive unit.
---	---	Orange	Drive unit 2 failure. Replace the drive unit 2 with a new drive unit.
Orange	---	---	Controller unit failure. Replace the controller unit with a new controller unit.
OFF	OFF	OFF	Check the condition from of the power supply status. If not recovered, contact your distributor.
Orange flashing	OFF	OFF	<1> Check the condition of both drive units. If not recovered, contact your distributor. <2> Check to confirm that the desired drive unit was properly replaced. Temporarily return to the original setup and repeat the process. Any of the above.
Other lit or flashing indicator.			Contact your distributor.

--- : Normally off, or light, or flashing when accessed. If replacing the drive unit does not fix the problem, contact your distributor.

## 6.2 Replacing Drive Units

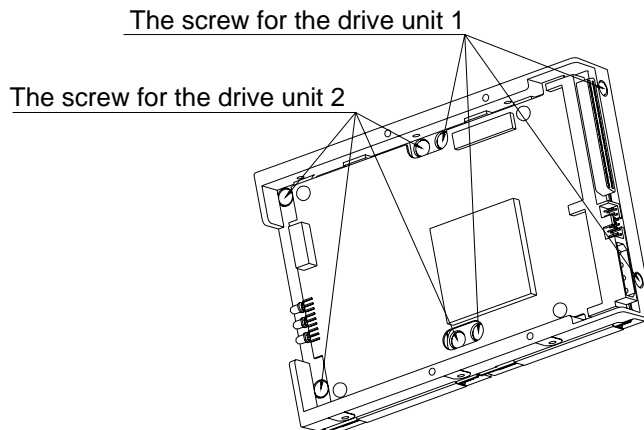
Turn off the host computer and remove the **Mirror Drive** from host computer, while replacing the drive unit. When the failed drive unit is replaced with a new drive unit, data rebuilding will begin automatically. During the data rebuilding, **Mirror Drive** can access from a host computer.

	<h3>Important</h3>	<p>Before replacing the failed drive unit, be sure to prepare the drive unit designated by ADTX as described in "Appendix D Replacement Parts. " Do not replace with HDDs other than the designated model, even if the capacity, manufacturer, or model numbers on the label are same. Using unauthorized HDD will result in malfunction or damage. The warranty does not cover any damages resulting from replacement with non-specified HDD, and ADTX will not be liable for any consequences of using identified HDD.</p>
		<p>If the drive status indicator light orange, immediately replace the specified drive unit with a new drive unit. Leaving the <b>Mirror Drive</b> with a single operating drive unit will result in data loss if the other drive unit fails.</p>


	<h3>Caution</h3>	<p>Before handling the drive unit while replacing the drive unit, touch a metal object, such as the metal enclosure of the host computer, to discharge static electricity from your body.</p>
		<p>Avoid subjecting the drive unit to vibrations or shock when replacing. Subjecting the drive unit to vibration or shock may result in malfunction or failure.</p>

### Replacing a Drive Unit

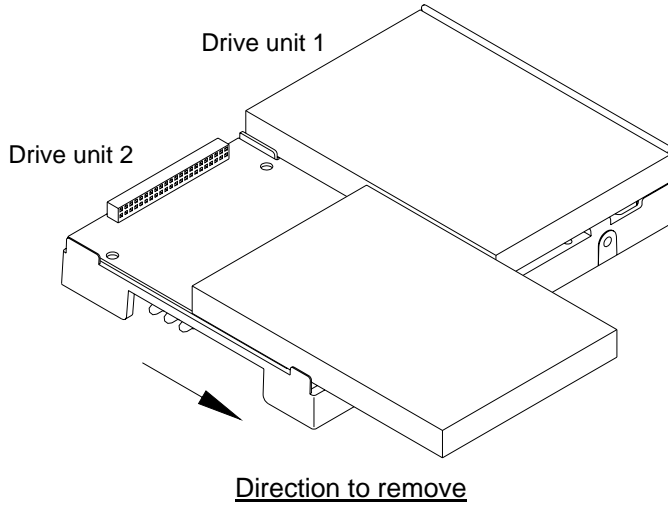
1. Prepare the new drive unit specified in "Appendix D Replacement Parts."
2. Confirm correct identification of the failed drive unit by the drive status indicator or buzzer.
3. Disconnect the SCSI cable and power cable and remove the **Mirror Drive** from the host computer.
4. Remove four screws which are fixing the failed drive unit.




Location of the screw

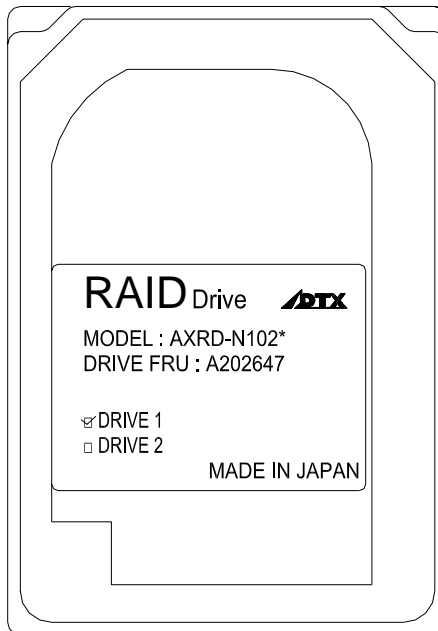
	<h2>Caution</h2>	Do not remove the two drive units simultaneously.
		Do not change a setup of the jumper of the drive unit for exchange, which may result in malfunction.

5. Place the **Mirror Drive** on the antistatic bag put on the level place. Remove the failed drive unit from controller unit. Refer to the following figure for the direction to remove.




	<h2>Caution</h2>	When removing the failed drive unit from connector of controller unit, do not raise the failed drive unit or do not shift back and forth. The solder portion and connector of a controller unit may break.
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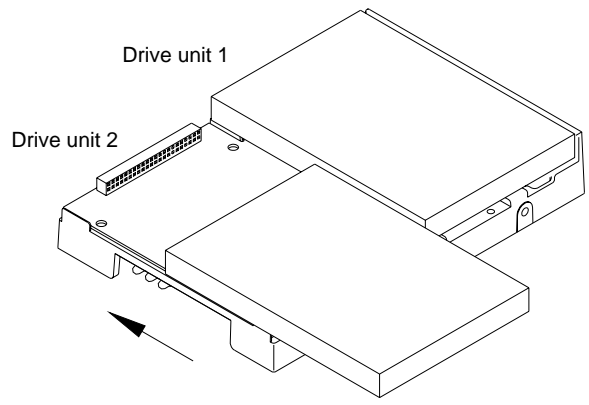
6. Mark with permanent marker in the box on the label corresponding to a new drive unit.



(E.g.) Check on the drive unit 1


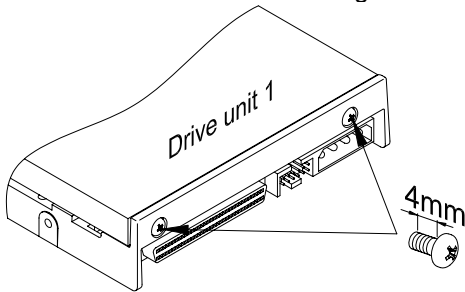
	<h2>Caution</h2>	When marking the box, do not push the surface of the drive unit strongly.
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7. Attach a new drive unit in a connector of controller unit. Confirm that the check is put on the label of a new drive unit.



(E.g.) Direction to attach


8. Tighten the screw with the designated torque (0.29 Nm Recommended). Tighten the screw equally by turns.

	<h2>Caution</h2>	<p>The length of screws for side of the drive unit are 4 mm; shorter than others. Do not use those long screws.</p> 
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9. In seconds, data rebuilding will start, while the drive status indicator for the replaced drive unit lights green. The drive status indicator for the correctly functioning drive unit will not light. The access indicator will flash orange.

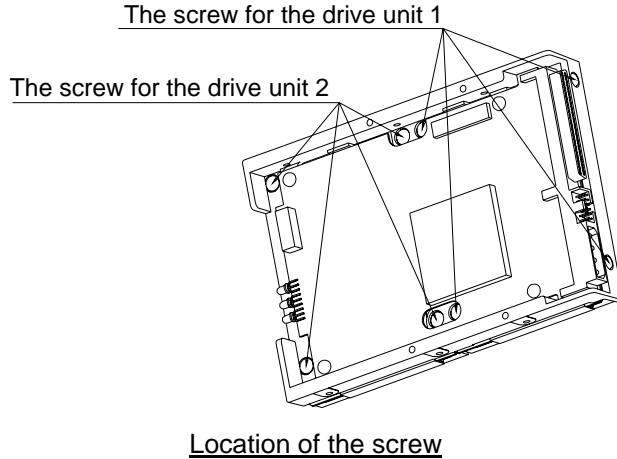
10. When data rebuilding is complete, the drive status indicator will go out.


11. If the drive status indicator for the replaced drive unit does not turn green or turns orange once again, repeat the procedure, starting with step 2.

	<h2>Important</h2>	<p>If you mistakenly replace the correctly functioning drive unit, the drive status indicator for both drive units will not light. Then the access indicator will flash orange. The host computer will be unable to operate the <b>Mirror Drive</b>. In this case, turn off the host computer. Replace the failed drive unit with the new drive unit, and replace the correctly functioning drive unit. Turning on the host computer will begin data rebuilding.</p>
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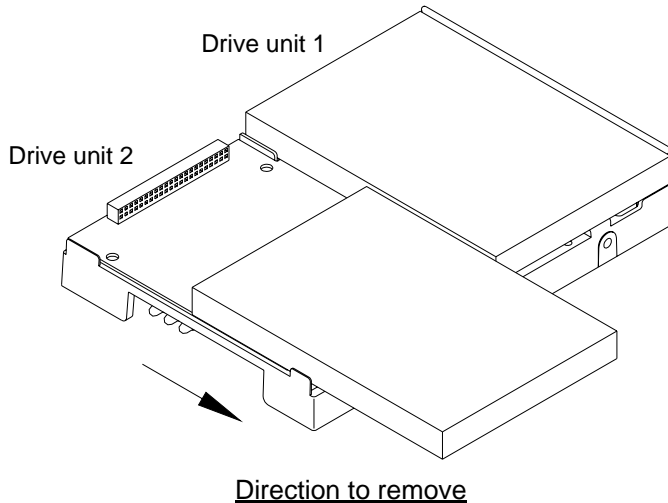
Replacing Both Drive Units


1. Prepare the new drive unit specified in "Appendix D Replacement Parts."
2. Disconnect the SCSI cable and power cable and remove the **Mirror Drive** from the host computer.
3. Remove screws which are fixing the both drive units.



	<p><b>Caution</b></p>	<p>Do not change a setup of the jumper of the drive unit for exchange, which may result in malfunction.</p>
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4. Place the **Mirror Drive** on the antistatic bag put on the level place. Remove the both drive units from controller unit. Refer to the following figure for the direction to remove.



	<p><b>Caution</b></p>	<p>When removing the failed drive unit from connector of controller unit, do not raise the failed drive unit or do not shift back and forth. The solder portion and connector of a controller unit may break.</p>
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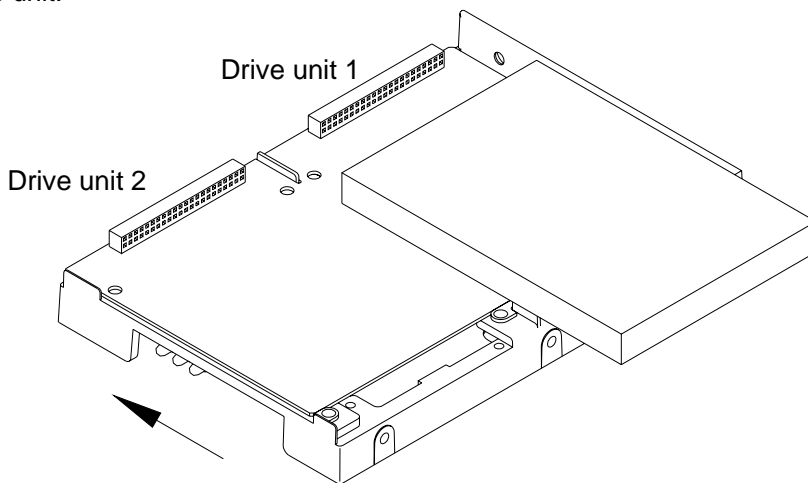
5. Mark with permanent marker in the box on the label corresponding to a new drive unit.



(E.g.) Check on the drive unit 1

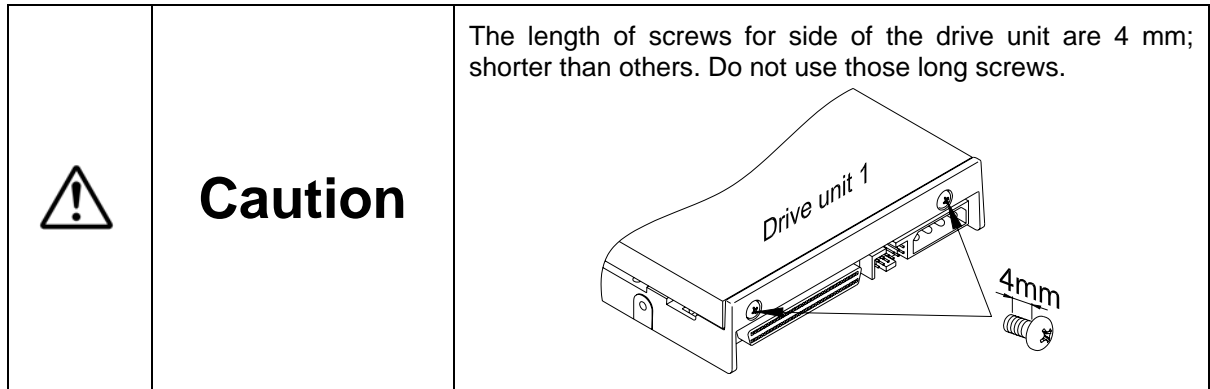
	<b>Caution</b>	When marking the box, do not push the surface of the drive unit strongly.
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6. Attach a new drive unit 1 in a connector of controller unit. Confirm that the check is put on the label of a new drive unit.

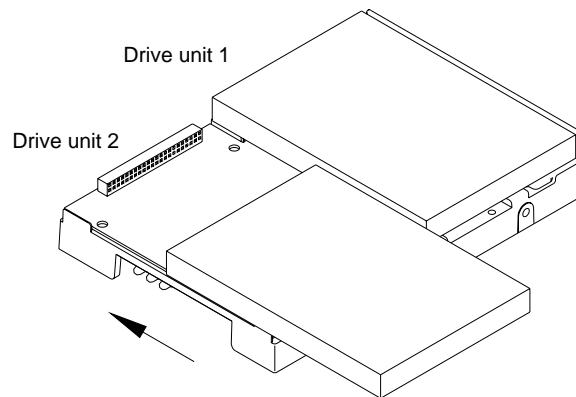


(E.g.) Direction to attach

7. Tighten the screw with the designated torque (0.29 Nm Recommended). Tighten the screw equally by turns.



8. Mount the **Mirror Drive** in the host computer. Firmly connect the SCSI cable and 4-pin internal power cable.
9. Turn on the host computer. Confirm that the host computer recognizes the **Mirror Drive**. The drive status indicator of a drive unit 2 which is not inserted will light orange.
10. Turn off the host computer. Disconnect the SCSI cable and power cable and remove the **Mirror Drive** from the host computer.
11. Attach a new drive unit 2 in a connector of controller unit. Confirm that the check is put on the label of a new drive unit.



(E.g.) Direction to attach

12. Tighten the screw with the designated torque (0.29 Nm Recommended). Tighten the screw equally by turns.
13. Mount the **Mirror Drive** in the host computer. Firmly connect the SCSI cable and 4-pin internal power cable.
14. Turn on the host computer. In seconds, data rebuilding will start, while the drive status indicator for the replaced drive unit will light green. The drive status indicator for the correctly functioning drive unit will not light. The access indicator will flash orange.
15. When data rebuilding is complete, the drive status indicator will go out.
16. If the drive status indicator for the drive unit 2 does not turn green or turns orange once again, check the condition of both drive units. If the problem persists even after you replace the drive unit, please contact your distributor.

## 6.3 Other problems


If the problem persists even after you replace the drive unit or the controller unit, please contact your distributor.

## 6.4 Data Rebuilding


If a failed drive unit was correctly replaced, data rebuilding (the copying of all data on the correctly functioning drive unit to the replaced new drive unit) will start automatically.

During data rebuilding, the drive status indicator for the correctly functioning drive unit will not light. The drive status indicator for the replaced drive unit will light green.

If one of the drive units fails, the **Mirror Drive** will continue to function, maintaining data integrity.

	<b>Caution</b>	Do not turn off the host computer while the <b>Mirror Drive</b> is rebuilding data, which may result in loss of data or failure.
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When the correctly functioning drive unit fails during data reconstruction, the **Mirror Drive** omits copy of bad the sector and continues to reconstruct the remaining data. These skipped sectors will no longer be readable. In order to avoid copying incorrect data, the data pattern of an ECC error is written in the replaced drive unit. This function is named "Skip Reconstruction." When data rebuilding is complete, becomes normal mode. The drive status indicator for the correctly functioning drive unit will light orange and the access indicator will not light.

	<b>Important</b>	If the data recovery process skips errors during data rebuilding, then the data on those sectors will be lost. It is recommended you make periodic backups.
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# Appendix A Specifications

## A. 1 Product Specification

Model name		AXRD-N102S1	AXRD-N202S1
RAID levels		1	
Storage capacity		10 GB	20 GB
Number of LBA		19,636,736	39,065,984
Number of Cylinders		19,480	38,755
Number of Heads		16	
Sectors		63	
Host interface		Ultra Wide - SCSI (LVD/SE)	
Data transfer rate (max.)		40 MB/s	
Number of HDDs		2	
External dimensions		101.6 mm (W) x 146.0 mm (L) x 24.6 mm (H)	
Weight (max.)		360 g	
Operational environment (1)	Temperature	In operation 5 to 45 °C (4) Not in operation -40 to 65 °C	
	Humidity	In operation 8 to 90% Not in operation 5 to 95%	
Voltage (Vcc)		4.85 to 5.25 VDC	
Power supply ripple (2) (max.)		100 mV p-p (0 to 20 MHz)	
Power startup time (3)		5 to 100 ms	
Power consumption	Startup (max.)	2.4 A	
	Idle (max.)	1.2 A	
	Read/Write (max.)	2.1 A	

**Note:**

(1): With no condensation.

(2): Including startup time.

(3): Time until Vcc reaches 4.85 V.

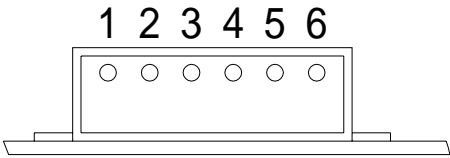
(4): When mounting in your host computer, provide sufficient cooling to keep the surface temperature of the drive unit below 60 °C.

## A.2 External Output Signal Specifications

### A.2.1 Status Output Signal

This table shows the pin configurations, status definitions, internal circuitry, electrical specifications, and connector specifications for the status output signal.

The connector signal pins are configured as follows:

Pin Number	Signal	Pin configuration
1	GND	
2	+5 V DC	
3	Status bit 2	
4	Status bit 1	
5	Status bit 0	
6	GND	

Status output is transmitted in 3-bit signals, as follows:

Number	Status bit 2	Status bit 1	Status bit 0	Status
0	L	L	L	Normal operation
1	L	L	H	Drive unit 1 has failure
2	L	H	L	Drive unit 2 has failure
3	L	H	H	Data rebuilding
4	H	L	L	Controller unit failure (1)
5	H	L	H	Reserved
6	H	H	L	<b>Mirror Drive</b> startup processing
7	H	H	H	Initializing

H: TTL level output high.

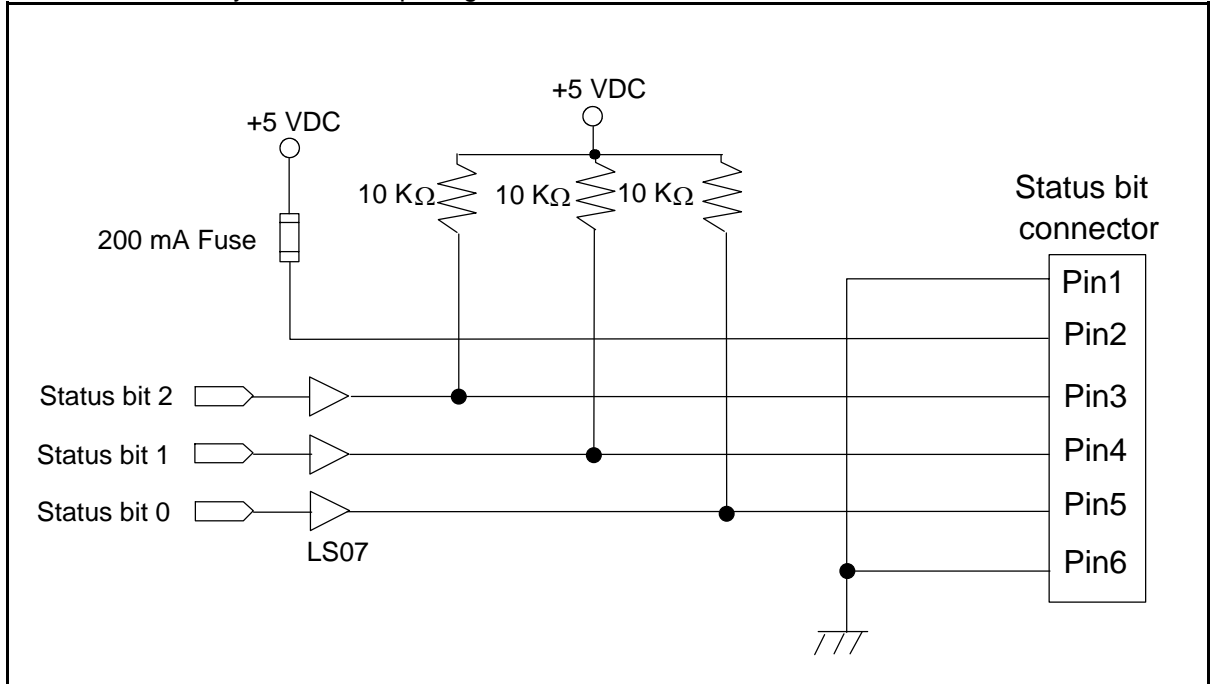
L: TTL level output low.

**Note:**

(1) The following may indicate damage to the controller unit.

- If both drive units fail to power on.
- If both drive units are properly connected, with power on
- If the correctly functioning drive unit is erroneously replaced, rather than the drive unit that failed.

The internal circuitry of status output signals indicate as follows:



Status output signal uses LS07 (open corrector).  
Each output has a 10 K pull-up resistor.

Connector specifications

	Part name	Manufacturer
<b>Mirror Drive</b> header	DF3-6P-2H	HIROSE Electric Co., Ltd.
External connectors – connector side (recommended)	DF3-6S-2C	HIROSE Electric Co., Ltd.
External connectors – connector crimp contacts (recommended)	DF3-22SC	HIROSE Electric Co., Ltd.

## **Appendix B Accessories**

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3.5-inch Mirror Drive SCSI Model AXRD-N Series is shipped with following accessories.

- 3.5-inch Mirror Drive SCSI Model AXRD-N Series user's manual. (This manual)
- Mounting screws. (x4)

# Appendix C Factory Default Setting

The **Mirror Drive's** factory default setting is as follows:

## Setting DIP switch

	Factory default setting		
	Setting	DIP switch No.	DIP switch setting
SCSI ID	0	1	OFF
		2	OFF
		3	OFF
		4	OFF
Single ended mode	OFF	5	OFF
Write cache mode	ON	6	ON
Auto spin mode	ON	7	ON
Buzzer	ON	8	ON
Normal mode	Mirror mode	9	OFF
		10	ON



## Setting Jumper

	Setting
Jumper 1	ON
Jumper 2	OFF

## Appendix D Replacement Parts

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The following are supplied as user-replaceable parts.

Part name	Part number	
10 GB drive unit	A203050	Replacement drive unit for AXRD-N102S1.
20 GB drive unit	A203053	Replacement drive unit for AXRD-N202S1.
Controller unit	A202748	Replacement controller unit for AXRD-N series SCSI.

# Information

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For more information about this product, please contact your distributor.

Distributor's information
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- Product Records

Model Name : \_\_\_\_\_

Model / Type : \_\_\_\_\_

Serial Number : \_\_\_\_\_

## - *Manufacturer*



This product is manufactured by  
Storage Vision Co., Ltd. in Japan.

<http://www.str-v.com>