



# Hitachi AMS 2100/2300 Storage System ENC Unit Replacement Guide

The Hitachi AMS 2100/2300 Storage System's hot-swappable feature enables you to replace a ENC unit without turning off the array.

This replacement procedure includes instructions to physically remove and replace a ENC unit with the power turned on. See the Hitachi AMS 2000 Service Guide for troubleshooting information to determine whether a ENC unit has failed and how to order a new one.

## Replacement Procedure

### Tools Needed

- Electrostatic discharge (ESD) wrist strap
- Storage Navigator Modular 2

### Before You Begin

1. Verify the following conditions before replacing an ENC cable:
  - The base unit controller firmware is not being uploaded or updated.
  - No other parts except an ENC unit have failed and/or are being replaced at the same time.
  - No failures are listed in the Navigator 2 Alerts window except one for an ENC unit.
2. Note the LED status on the front of both the base and expansion units before replacing parts. See Chapter 4 in the *Hitachi AMS 2000 Family Storage System User's Guide* for a description of the LEDs and their functions. Verify the following conditions:
  - No Alarm LEDs are ON anywhere on the base or expansion units, except the Alarm LED on the ENC unit you are replacing.
  - Neither the Ready or Warning LEDs on the base unit is blinking.



**CAUTION!** Do not replace any parts while the green Ready LED on the front of the base unit is blinking at high speed. The blinking green LED means that a firmware upgrade is being downloaded to the unit. Wait until after the download is complete before replacing any parts.

**CAUTION!**

- When replacing a part with the power turned ON, do not leave any slot in the array open for more than ten minutes. Otherwise, the loss of cooling air could cause the unit to overheat and shut down.
  - If a backup battery and an ENC unit fail at the same time, replace the backup battery first. The failure code for a backup battery (shown in the Navigator 2 Alerts window) is W03z0x, W0400x or W3Tz0x.
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**NOTE:** If the Power Saving storage feature is installed, wait at least 20 seconds after removing a part before reinstalling it or installing a replacement part. Do not replace any parts while the disks are spinning up. To determine if the drives have started to spin up, look for the message “The request of spin up of disk drives is accepted” in the Navigator 2 Alerts window. If you see that message, do not reinstall the part until the message “I1GZ00 The spin up of disk drives completed” is displayed. This indicates that the drives are at operating speed.

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## Task List

Complete the following tasks to replace an ENC unit.

1. Troubleshoot the array according to the instructions in the *Hitachi AMS 2100/2300 Storage System Service Guide* and the error message(s) and instructions in the Navigator 2 Alerts window.
  2. Unpack the ENC unit and verify that you have the correct part.
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**CAUTION! Do not disconnect the ENC cables first. Partially remove the ENC unit from the expansion unit and then disconnect the ENC cables.**

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3. Slide the ENC unit partway out of the expansion unit.
4. Disconnect the ENC cables from the unit. If the connectors on the cables are tight in the socket, gently wiggle them out of the sockets. Be careful not to bend the cable sharply while unplugging the cable.
5. Remove the failed ENC unit from the expansion unit.
6. Slide the new ENC unit partway into the slot.
7. Connect the ENC cables to the ENC unit.
8. Open the lock lever just far enough so that the tab on the lock lever can be inserted into the slot in the frame of the expansion unit when you slide the ENC unit into the expansion unit.
9. Slide the ENC unit all the way into the expansion unit.
10. When the tab on the lock lever is engaged in the slot, push the lock lever closed until you hear the lock button click. This pulls the ENC unit all the way into the expansion unit and plugs it in.
11. The firmware from the other ENC unit in the expansion unit will automatically be loaded onto the ENC unit you just installed.

## Unpacking an ENC unit

1. Remove the ENC unit from its shipping container.
2. Verify that the unit is part number 3276159-A.
3. Return the ENC unit to the container until you are ready to install it

## Removing an ENC unit

- To remove an ENC unit, complete the following steps with the power turned on.
1. Verify that the ENC unit has failed. Check that the red alarm LED on the ENC unit you are replacing is ON and that the orange LCT LED is OFF. The following illustration shows the location of the LEDs.

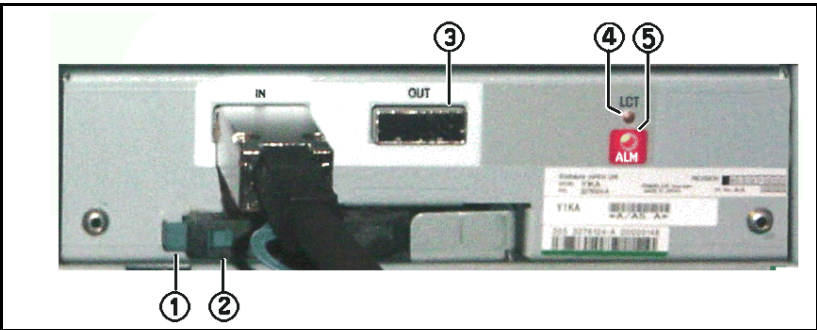


Figure 1: ENC Unit Controls and Connectors

Table 1: ENC Unit Controls and Connectors

| Item | Description | Item | Description                                                                                                 | Item | Description                                                                 |
|------|-------------|------|-------------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------|
| ①    | Lock Button | ③    | ENC Port (OUT)                                                                                              | ⑤    | Alarm LED<br><b>RED</b><br>This LED indicates that the ENC unit has failed. |
| ②    | Lock Lever  | ④    | LCT LED<br><b>ORANGE</b><br>See Chapter 4 in the <i>Hitachi AMS 2100/2300 Storage System User's Guide</i> . |      |                                                                             |



**NOTE: Replacement order.**

- When a controller on the base unit and an ENC unit in an expansion unit in the same path have failed at the same time, replace the controller first. See the Hitachi AMS 2100/2300 Storage System Control Unit Replacement Guide for instructions to replace a control unit.
- When two ENC units in the same path have failed, replace the ENC unit closest to the controller first.

2. If you have not already done so, put on an ESD grounding strap and attach the clip to the unpainted rear part of the expansion unit.

3. Press the blue lock button on the end of the lock lever and pull the lever open to unlock it. Then quickly pull outward on the lock lever as far as you can. This unplugs the ENC unit from the expansion unit and slides it partway out of the unit.
4. Disconnect the ENC cables from the ENC unit.

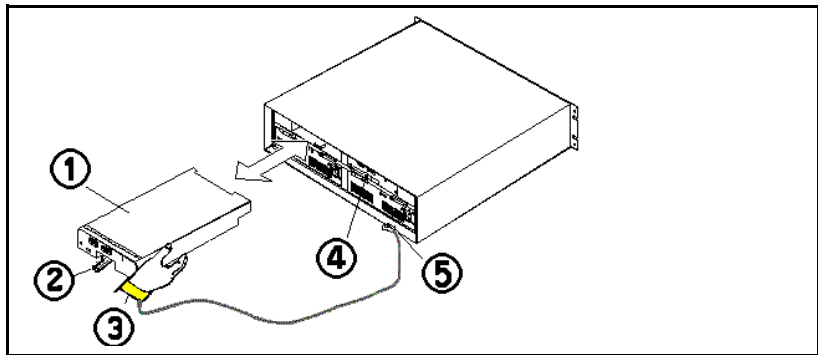


**Figure 2: Replacing an ENC Unit**

**Table 2: Replacing an ENC Unit**

| Item | Description | Item | Description    | Item | Description      |
|------|-------------|------|----------------|------|------------------|
| ①    | ENC Unit    | ③    | Wrist Strap    | ⑤    | Wrist Strap Clip |
| ②    | Lock Lever  | ④    | Expansion Unit |      |                  |

5. Slide the failed ENC unit out of the expansion unit and set it aside.

## Installing an ENC Unit

Complete the following steps to install an ENC unit.

1. Wait at least 20 second before installing the new ENC unit. Then slide the new ENC unit partway into the slot in the expansion unit. Make sure that the connectors on the ENC unit do not plug in to the expansion unit.
2. Connect the ENC cables to the ENC unit.
3. Push the blue lock button on the end of the lock lever and unlock it.
4. Open the lock lever far enough so that the tab on the lock lever can be inserted into the slot in the frame of the expansion unit when you slide the ENC unit into the expansion unit.
5. When the tab on the lock lever is engaged in the slot, push the lock lever closed until you hear the lock button click. This pulls the ENC unit all the way into the expansion unit and plugs it in.
6. Verify the Alarm LED on the new ENC unit and the Warning LED on the front of the expansion unit are OFF. If the Warning LED is blinking slowly, view the Alerts window in Navigator 2 and follow the instructions there to recover the ENC unit. All yo may need to do is unplug the ENC unit by sliding it part way out of the expansion unit, wait at least 20 seconds, and install it again.