Alliance Storage Technologies, Inc.
User Manual

Plasmon® Brand
Archive Appliance and G Enterprise Libraries

P/N 800-103857-00 Rev 01

Preface

Copyright

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Revision History

Revision	Date	Description
A	7/2012	Initial release, from 1273 & 2333 +Elite.
01	5/2013	New Rev Scheme, safety, SCSI, misc corrections, specifications

NOTE

The most current information about this product is available on the Plasmon web site (www.plasmon.com).

Conventions Used

WARNING

A **WARNING** is used to alert the reader to situations or conditions that could potentially result in personal injury, fire hazard, or equipment damage.

CAUTION

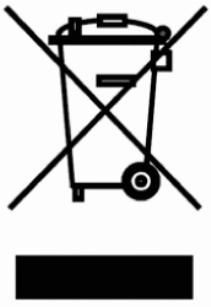
A CAUTION is used to warn of undesirable procedures, or of situations In which equipment damage could result.

NOTE

A NOTE is used to emphasize an area of text or to provide additional information.

WEEE Compliance

Alliance Storage Technologies, Inc products with the Waste Electrical and Electronic Directive (WEEE) label, shown below, can be shipped back to Alliance Storage Technologies, Inc for proper disposal of hazardous components. Please contact Alliance Storage Technologies, Inc Technical support at the locations listed inside the back cover of this manual for the proper procedure.



Product Warranty

The Plasmon® library is warranted free from defects in materials, parts and workmanship and to conform to the current product specification upon delivery. For the specific details of your warranty, refer to your sales contract or contact the company from which the library was purchased.

The Alliance Storage Technologies, Inc quality system is in compliance with and registered to ISO9001:2000. All products are assembled from new or remanufactured parts.

The warranty for the library shall not apply to failures of any unit when:

- The library is repaired by anyone other than Alliance Storage Technologies, Inc personnel or approved agent.
- The library is physically abused or is used in a manner that is inconsistent with the operating instructions or product specification defined by Alliance Storage Technologies, Inc.
- The library fails because of accident, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, modification, or service by anyone other than the factory service center or its approved agent.
- The library is repaired by anyone, including an approved agent, in a manner that is contrary to the maintenance or installation instructions supplied by Alliance Storage Technologies, Inc.
- The Alliance Storage Technologies, Inc serial number tag is removed.
- The library is damaged because of improper packaging on return.

CAUTION

Returning the library in unauthorized packaging may damage the unit and void the warranty.

If problems with the library occur, contact your maintenance organization; do not void the product warranty by allowing untrained or unauthorized personnel to attempt repairs.

WARNING

Untrained personnel operating the library may create dangerous situations. This could lead to physical harm to the operator, data loss, and/or disabling of the library system.

Please review and observe all safety statements concerning the operation of the library.

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Chapter 1
Product Overview

General Information

The Plasmon Archive Appliance™ is a RoHS compliant network attached data library providing long term secure storage for archived and fixed content data. It combines the performance benefits of network attached RAID with the reliability and robustness of Plasmon UDO™ (Ultra Density Optical) optical storage technology. The Archive Appliance includes an optional Storage Management System (SMS) with server grade SAS RAID cache, integrated with a Plasmon optical library, UDO drives and media running Plasmon enterprise class storage management software.

The Plasmon Archive Appliance library component makes multiple 5.25 inch UDO™ (Ultra Density Optical) media available to computer systems for reading or writing. The libraries have media storage capacities ranging from 164 to 638 media, providing up to 38.28TB of data storage. Media is easily added or removed through an automated mailslot located above the library's front door. A robotic media transport assembly (MTA) with a dual picker, which can move two media simultaneously, makes rapid media exchanges and provide increased performance in a multi-user environment.

The Plasmon Archive Appliance products are available in two series: the AA638-A12 and the Elite AA638-E12 which offers an SSD performance increase. G Series and Elite G Series Libraries are also offered without SMS for connection via SCSI to host systems. The G Series libraries also support standard MO (Magneto Optical) drives and media. All stand-alone libraries can be upgraded in the field by adding optional 200 slot expansion bays.

This manual addresses the hardware portion of the Archive Appliance models. Refer to the Plasmon Archive Appliance Administration Guide for all SMS software configuration details.

Figure 1. Elite E12 SMS

Configurations

All of the following Plasmon system configurations are available:

Table 1. AA638 Series Configurations

Model	Max Number Cartridge Media	Max Number Optical	Max Number SMS HDDs
AA164-A12	164	6	12
AA238-A12	238	6	12
AA438-A12	438	6	12
AA638-A12	638	6	12
G164	164	12	
G238	238	12	
G438	438	12	
G638	638	12	
Elite AA164-E12	164	6	12
Elite AA238-E12	238	6	12
Elite AA438-E12	438	6	12
Elite AA638-E12	638	6	12
Elite G164	164	12	
Elite G238	238	12	
Elite G438	438	12	
Elite G638	638	12	

Command Processing

The library responds to SCSI commands from a host computer system to load and unload drives and move media within the library.

Media Movement

The media transport assembly (MTA) us used to move single media within the library between the media storage area and a drive or the mailslot. To speed the process, the MTA can move two media simultaneously.

Importing and Exporting

Single media can be imported or exported using the mailslot. The mailslot is accessible to both pickers in the media transport assembly (MTA). For data security, the application software controls access to the mailslot function. The mailslot option may be disabled via software or front panel operation.

To manually import a media, press the open/close mailslot button on the far right of the front panel display. After inserting a media, the mailslot closes automatically. Depending on the application software it may be necessary to re-inventory media after a manual import/export.

After manually exporting a media, the operator must press the open/close mailslot button to close the mailslot.

In G and Elite G Libraries, media can be loaded using the ten-slot bulk load magazine. The bulk loading function may be disabled via software or front panel operation. See Bulk Loading Media, next section.

Bulk Loading Media

AA638 A12 and Elite AA638 models load media by opening the rear access door and placing media in each storage slot by hand.

The G and Elite G series also have an import/export caddy that supports 10 media cartridges. This allows the user to load or remove in bulk while the library is on-line.

> Note: Before considering this method for loading media during initial set up, ensure the library management software supports initial bulk loading. Refer to the library management software documentation for the required procedures. *This method does not apply for AA models*.

UDO Drive Type

Plasmon Gx Libraries can have UDO30, UDO60, or both UDO drive types installed. The drive type is indicated on the drive bezel, visible inside the library, as shown in the pictures below. The drives are also labeled by type inside the front door of the libraries. UDO30 drives read and write only 30GB media. UDO60 drives read and write 60GB media, and can read 30GB media.

UDO30GB UDO60GB

Figure 2. UDO Drive Types

Drive Cleaning Cartridges

A special Plasmon UDO30GB Drive Cleaning Cartridge (part number 160-101300-00) is shipped with all UDO libraries containing UDO1 drives. This cartridge should be used only as recommended by a Alliance Storage Technologies, Inc support technician. This cleaning cartridge is for use in UDO1 drives only. It should not be used in UDO2 drives. It provides a dry, contact cleaning method. No liquid or cleaning solution of any kind should be used with this cartridge.

A special Plasmon UDO60GB Drive Cleaning Cartridge (part number 160-103322-00) is shipped with all UDO libraries containing UDO2 drives. This cartridge should be used only as recommended by an Alliance Storage Technologies, Inc support technician. This cleaning cartridge is for use in UDO2 drives only. It should not be used in UDO1 drives. It provides a dry, contact cleaning method. No liquid or cleaning solution of any kind should be used with this cartridge. Table 2 gives the minimum firmware versions required to clean UDO2 drives.

Table 2. Library Firmware Required to Clean UDO2 Drives

Libraries	Minimum Firmware Version
G164–G638	6.20[(1)]

[(1)]Alliance Storage Technologies Inc. always recommends using the latest firmware revision.

After each use, a check box must be marked on the appropriate side of the cartridge. When all check boxes are marked, the cartridge must be retired.

A demonstration/presentation explaining how to use the Plasmon UDO drive-cleaning cartridge is located at http://www.plasmontech.com/customer/player.html

UDO Media

The Plasmon G-Series libraries use UDO media with either 30GB or 60GB capacity, depending on UDO drive type. These are available in both true Write Once, Rewritable, and Compliant Write Once media types. Compliant Write Once media provides for selective data destruction for security purposes.

UDO media is not compatible with MO drives, and MO media is not compatible with UDO drives. The media transport assembly (MTA) in the library identifies the media type and does not try to insert incorrect media into a drive.

Data is written to and read from a disk enclosed within a carrier cartridge. If the library has the optional barcode reader, a barcode label on the cartridge identifies it to the library system software.

Figure 3. UDO Media

Write Protecting UDO Media

To write protect one side of the media, slide the tab on that side in the direction of the protect arrow as shown in the figure below. There is a write protect tab on each side of the disk. When a side is protected, the Write Protect window is open.

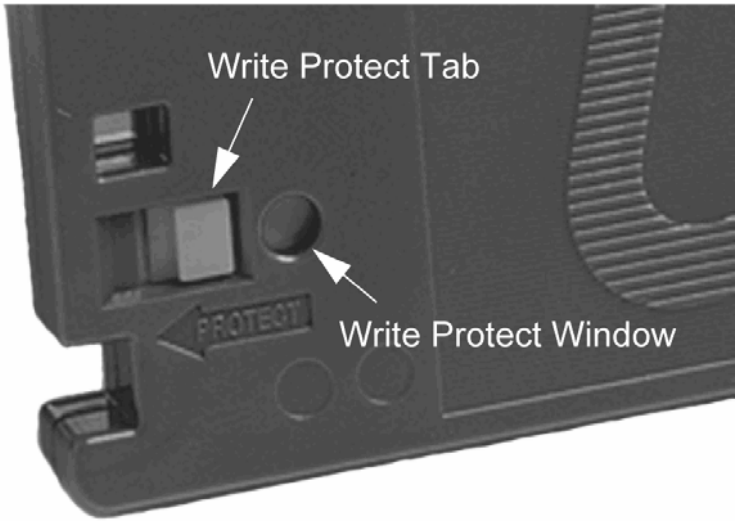


Figure 4. Write Protecting UDO Media

Plasmon UDO Media for Archive Appliance

Alliance Storage Technologies, Inc supports UDO media purchased from Alliance Storage Technologies, Inc only. UDO media purchased from Alliance Storage Technologies, Inc for Archive Appliance has a unique bar code label using seven characters.

Barcode Label for UDO Media

For more detailed information about bar code data and how it is read, refer to the *G-Series SCSI Reference Manual.*

The bar code scanner supports Code 39 bar code symbology and the Biased - Double Bar Code (Type 2) label format.

For more detailed information about barcode data and how it is read, refer to the G-Series Libraries SCSI Reference Manual.

Never place a label anywhere on the media except in the specified “label area”, as this may interfere with the proper handling of the media in the drive or the media transport assembly (MTA).

CAUTION

Do not write on, cover, or obscure the barcodes on a media. Doing so may cause the system to malfunction.

Biased-Double Barcode (Type 2) is the only appropriate label format for Gx libraries.

The barcode must be approximately centered along the outside edge of the media so the alphanumeric characters in the center read properly when the A side of the media is up. This barcode configuration is done with two barcodes – one on each end of the label. The Label is 4.9” (12.5 cm) long with seven characters. Bar codes of this type are available from Tri-Optic (www.tri-optic.com), part number 1801-47PA.

Figure 5. Type 2 Barcode Label Format and Placement

NOTE

When ordering barcode labels make sure to get a unique sequence of numbers.

UDO Media Care and Handling

To maintain maximum reliability, the operator should take the time to inspect each media used.

CAUTION

Always condition the media to the normal operating temperature of the room before using.

Improper handling or an inappropriate environment can damage the media. To ensure continued reliability:

- When media is loaded into the library, or when handling media, ensure that the cartridge case is clean. Dirty media cartridges can cause failures in loading or loss of data. If a cartridge case is dirty, wipe with lint free cloth.
- Do not carry media loosely (for example, in a box or basket). Media should be carefully and securely packed for transport.
- Do not load damaged media into a drive or library. Damaged media can interfere with read/write reliability.
- Never touch the disk. Opening the cartridge door and touching the disk may interfere with read/write reliability.
- Do not expose the media to moisture or direct sunlight.
- Do not expose the media to excessive heat (the allowable temperature range is 5 to 55°C).

Major Hardware Components

Refer to the following figures when reading the information in this manual.

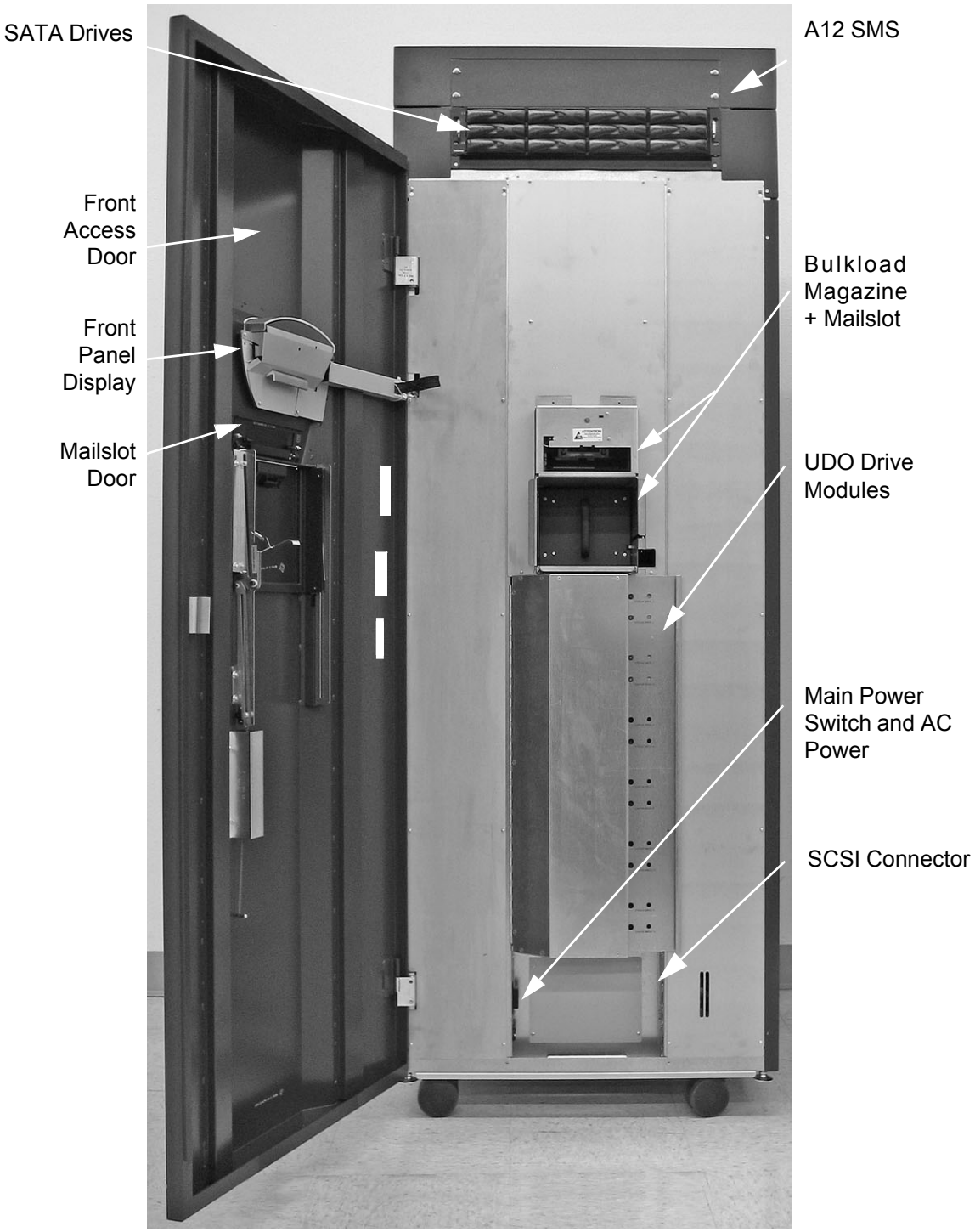


Figure 6. AA238-A12 Library, Front View

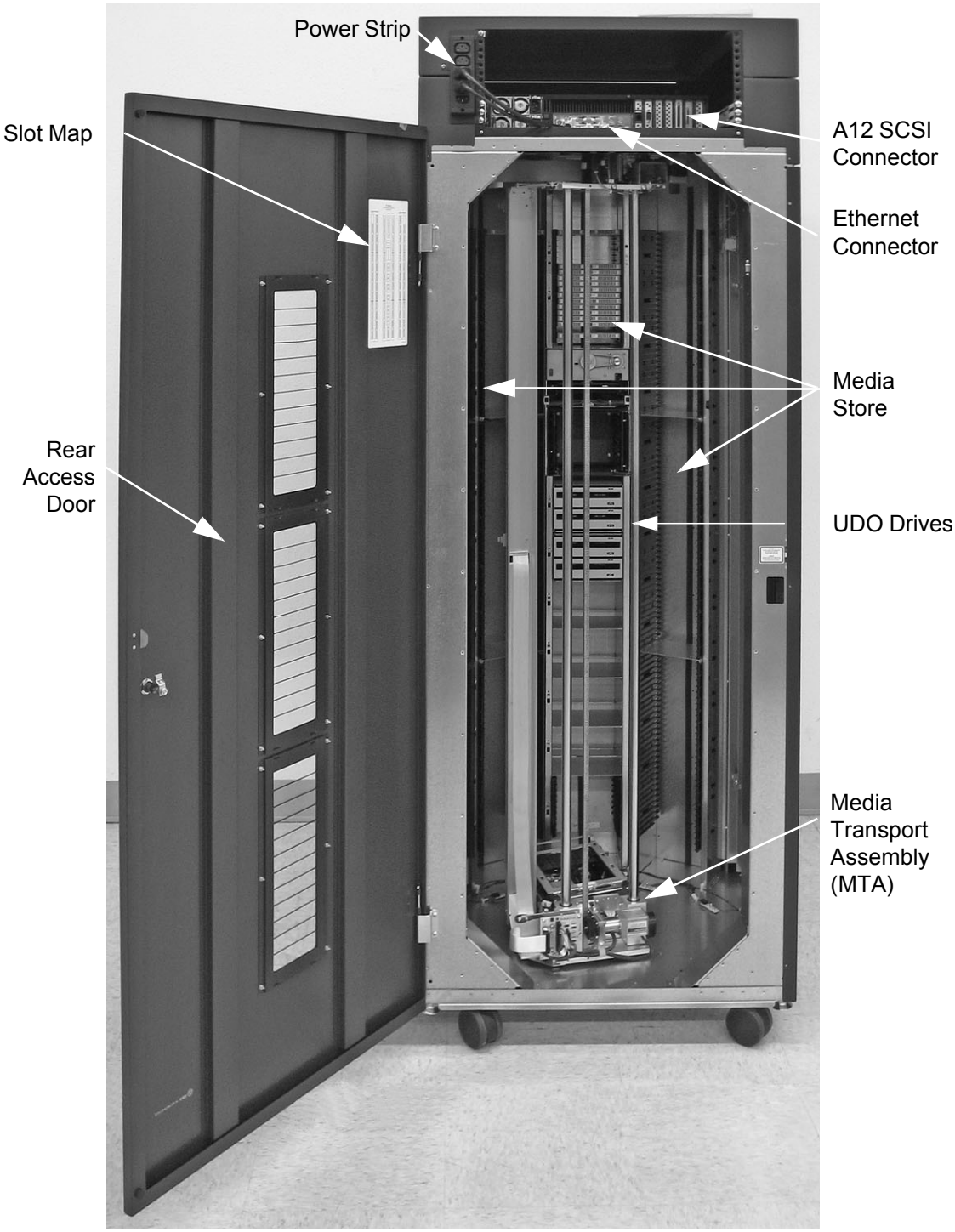


Figure 7. AA238 A12 Library, Rear View

SMS

The Storage Management System provides hardware and software for network attached storage with RAID cache and dual Giga bit network ports.

HDDs and RAID

Up to 12 Hard Disk Drives provide RAID in the SMS. AA638 A12 models use the A12 SMS with 1TB Sata HDDs. The Elite AA638 models use a high performance SMS with 2TB SAS HDDs and a non-volatile hardware RAID PCIe gen 2 high speed controller.

Mailslot

The mailslot provides access for adding or removing individual media. This function may be disabled via software or front panel operation.

Front Panel Display

The front panel display consists of the keypad and display controller, which provide the operator interface to the system. Also called the operator panel, it is used to display tests, modes, error codes and other user related messages.

Media Store

The media store holds each media in place. It consists of two vertically arranged plates with plastic grooved guide panels that hold each media.

Bulk Load Ten Slot Magazine

The bulk load magazine is capable of importing and exporting up to ten media in a stand-alone library. This feature is not supported by the Plasmon AA Software Management System.

Media Transport Assembly (MTA)

The media transport assembly (MTA) moves media between storage locations and the disk drives, and consists of the picker and flip assembly.

Optical Drives

The optical drives in the library allow reading and writing of data. They are fully tested within each library. The G and Elite G libraries support UDO30, UDO60 drives, MO drives, or a mix of these depending on host driver software. The AA638-A12 models support UDO30 and UDO60 drives, whereas the Elite AA638 models support only UDO60.

SCSI Interface

The SCSI interface provides for connection between a G or Elite G series library and a host computer. Also, the A12 SMS and Elite E12 SMS use a SCSI interface to communicate with the library for commands and for archival data transfer. An option is provided for a second SCSI channel to communicate with an additional G or Elite G Series extension library to double the media storage capacity and number of optical drives. Both interfaces are LVD Ultra 3 SCSI. UDO drives connect at 80MB/sec, wide bus.

CAUTION

To avoid damage to the adapter or the library, connect only LVD SCSI host bus adapters to the stand-alone library SCSI buses.

The SCSI Interface can be configured into single, dual, or triple SCSI buses as described on page 85.

Front Access Door

The front access door is used to gain access to the drive modules, power supplies, main power switch, AC connection, SCSI connections, and electronic components.

Rear Access Door

The rear access door is used to gain access to the robotics or to hand place media in storage slots for initial bulk loading. This door incorporates an interlock system requiring a key.

Power Strip

AA638-A12 models use an upper power strip for the SMS. Elite models use a lower front power strip to provide a single power source entry. G models have a lower front power entry module.

Chapter 2
Library Installation

Getting Started

This chapter provides a guide to installing a Plasmon AA638-A12, Elite AA638, or G-Series library and the procedures necessary to quickly get the library on-line.

Unpacking the Library

Please follow the unpacking instructions found in the shipping enclosure. Verify that all listed components are present. Save all packing material in case it is ever necessary to ship the library.

Before powering on the library:

1. Using the enclosed key, open the rear door of the library.
2. Carefully remove all the shipping restraints from the media transport assembly (MTA) attached to the lift rails inside the library.

CAUTION

Use minimum force when removing the restraints and packaging material from the MTE.

Library Position

Position the library in a location that allows both the front and rear door to open completely without obstruction. Allow at least a two-inch clearance on the sides for ventilation, however the recommended 56 inch space provides room for servicing movement. Lower the leveling feet to the floor to stabilize the library. Plan for the AC power cord set length to freely access the UPS power source outlet in case of an emergency disconnection. The library includes a 7.5ft (2.3m) cord set. (See Cord Set Specification, page 83.)

Library Environment

To ensure long-term reliability, operate the library only between 10º to 32ºC (50º to 90ºF) and 10% to 90% relative humidity. The media and drives require a clean environment. Excessive dust and dirt can lead to data loss, and increase service calls.

Space Planning

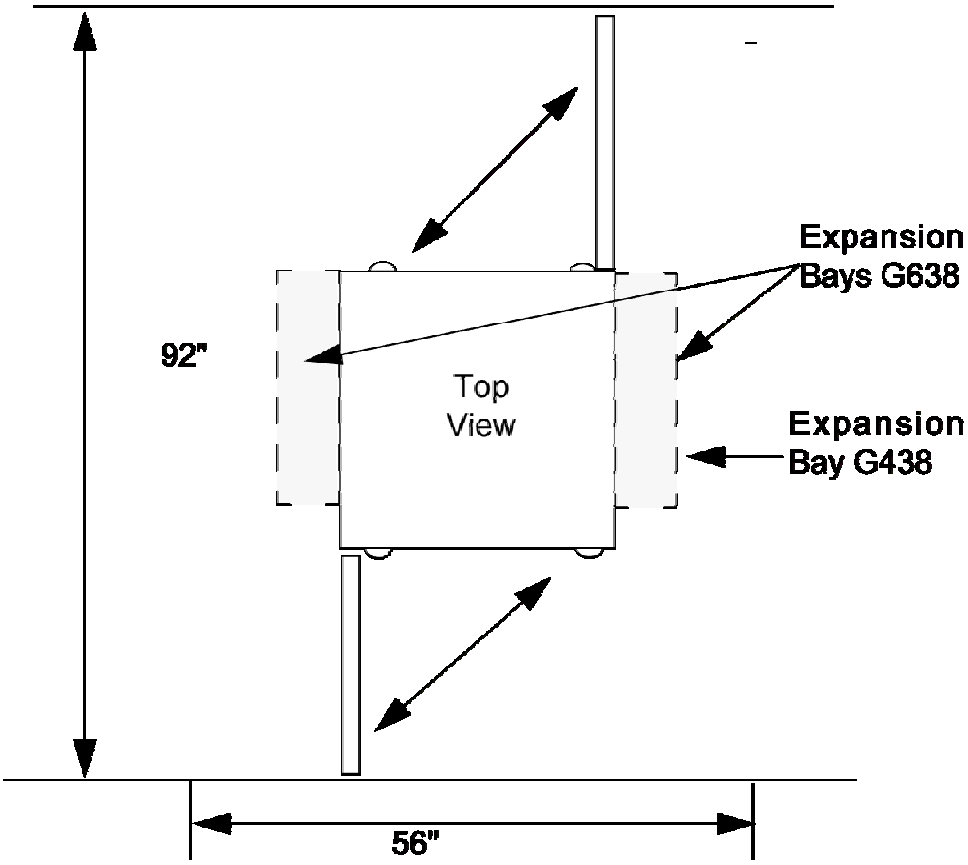


Figure 8. Space Requirements for Elite AA638 Series

External Power Requirements

The appliance requires an external power source with 100 to 253 VAC (the power supply is universal), at 50 to 60 Hz, and 15 A branch circuit protection.

CAUTION

To prevent the possibility of robotic errors during a pick or put operation with loss of AC power, a facility backup gen-set branch or a local UPS is required. (See page 84.)

Stabilizers

All Plasmon AA638 and Elite AA638 series models ship with a front stabilizer foot for each unit. The stabilizer prevents the appliance from tipping due to accidental force when the slide mounted SMS unit is pulled out from the top rack for servicing. The Elite AA638 series also restrains the SMS by a spring clip at the rear of the left-hand slide.

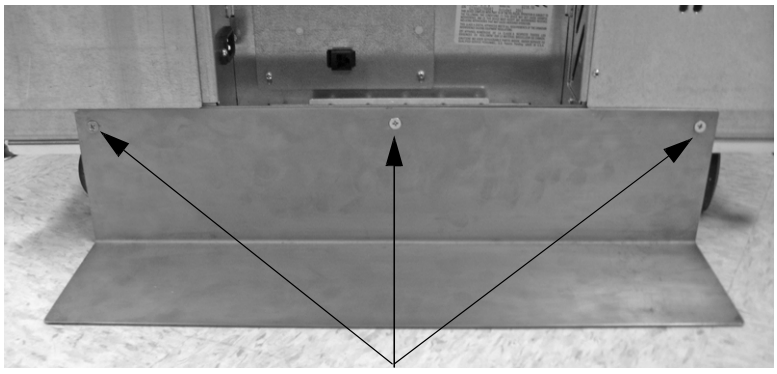
WARNING: STABILIZER

In order to comply with safety standards, the front stabilizer must be installed during all normal operation.

Lower the leveling feet to the floor to stabilize the library.

To install the front stabilizer:

Open the front door. Attach the stabilizer foot to the front bottom edge of the library chassis using the three Phillips head screws provided as shown in the picture below.



Three Mounting Screws

Figure 9. AA Front Stabilizer Plate

438 and 638 Bay Installation

The expansion storage bays that attach to the sides of Plasmon 438 and 638 libraries are shipped separately. The following instructions explain how to mount the bays to the main library chassis.

1. The main library chassis is shipped without side panels. Remove the side panels if upgrading a 164 or 238 library (for single bay upgrades remove the left side panel only).

2. Lower the four stabilizer legs on the main library chassis.

Figure 10. Library Side View

3. Position the expansion bay flush against the library chassis matching the guide pins on the chassis to the guide holes on the expansion bay.

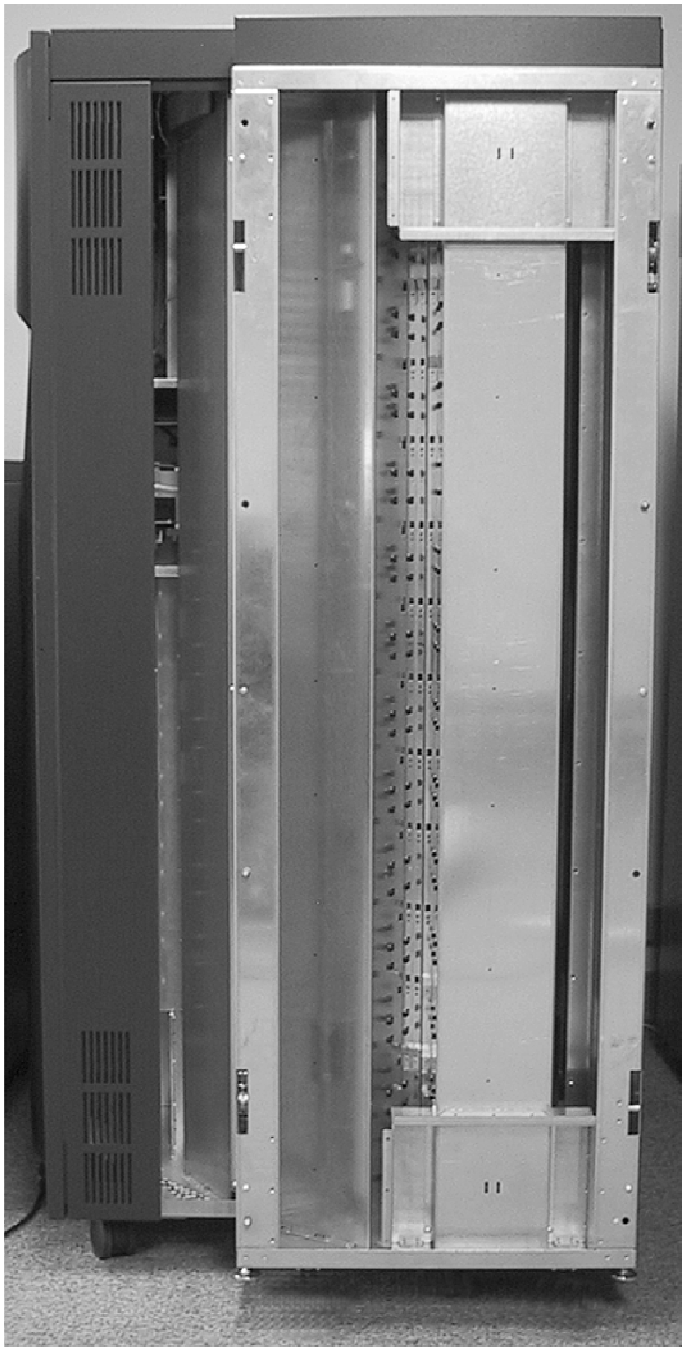


Figure 11. Right Expansion Bay View

4. Using a 5/16” hex wrench, engage the four latch hooks that hold the expansion bays to the library chassis. There are two on each side of the bay.

Figure 12. Expansion Bay Latches

5. Using a #1 Phillips head screw driver, attach the finish matching cover plate to the back side of the expansion bay with the color coated screws provided.

Figure 13. Bay Cover Plate

6. Attach the finish matching square column to the front of the bay by hanging it on the screw heads provided.

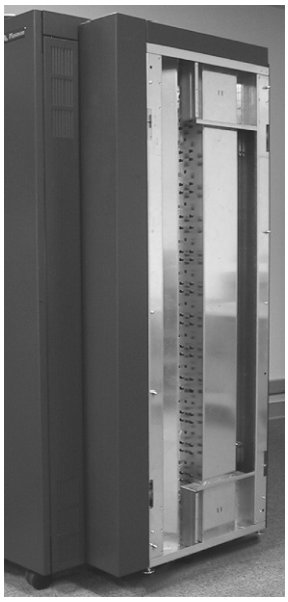


Figure 14. Finish Column

7. Finally, attach the finish matching side panel to the bay by hanging it on the screw heads provided.

Figure 15. Bay Panel

Mounting the SMS

The SMS components of the AA638-A12 and Elite AA638 series are shipped separately and must be mounted on top of the library chassis. This procedure covers the SMS mounting instructions.

1. Using two people, place the SMS hood and rack squarely on top of the library chassis. Fasten the rack to the chassis using six 1/4-20 truss head Phillips screws. Place three screws across the front and three across the back just inside the lower edge as shown below.

   Elite Models: The hood is gravity mounted onto the rack structure. First place the rack into position, secure with screws, then lower the hood gently into position over the rack.

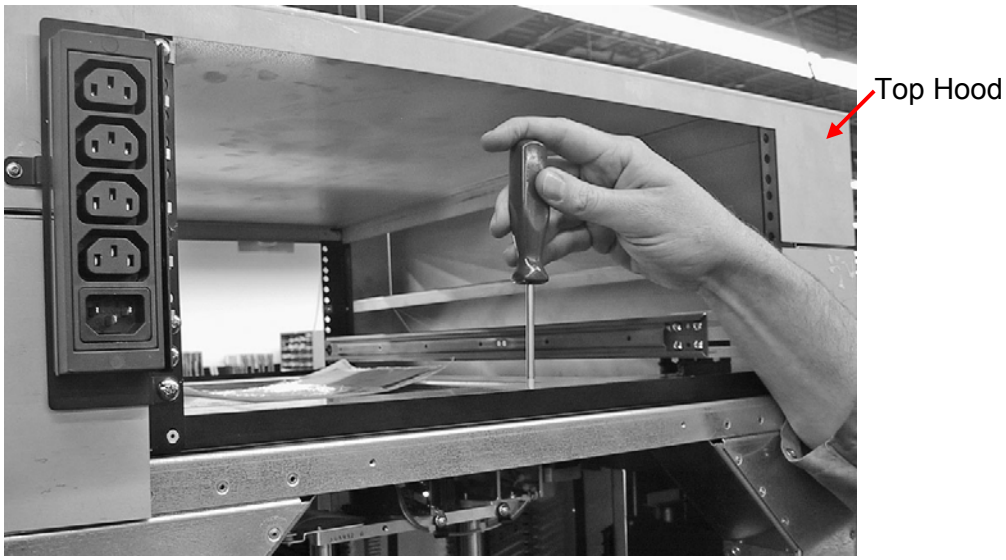


Figure 16. A12 SMS Hood Assembly

2. Fasten the rack side panels to the library chassis using four 4-40 x 1/4 flat head Phillips screws. Place two screws on the front and two on the back, one at each of the lower corners. Note that non-Elite libraries have screws that fasten the side panel covers inside through holes in the rack standard.

   Elite Models: Place two 4-40 x 1/4 flat head Phillips screws through the exposed front and two through the exposed back surface of the side panel. Internal screws have been eliminated.

Figure 17. Hood Side Panel Cover Assembly

If the screw holes do not line up properly, loosen the two Phillips head screws attaching the side panel covers inside the rack, line up the screw holes, then tighten all screws.

3. The AA SMS control unit is shipped from Alliance with all HDDs removed. Remove the two power supply modules and cover plate to additionally reduce the SMS weight.

4. Slide the SMS into the rack from the front as shown below. The mating rails are pre-mounted in the chassis and on the SMS control unit. Note the SMS slide rails have safety stop latches that are released by levers within the slides.

Figure 18. SMS Assembly (A12 shown)

5. Secure the SMS to the rack using two 10-32 x 1/2 pan head Phillips screws, one on each side in the top mounting hole, as shown below.

Figure 19. SMS Mounting Screws (A12 shown)

6. The E12 SMS unit on Elite models uses slide rails with a latching lever that must be manually released as the unit is rolled approximately half way in. Also, the E12 is not to be extended out for servicing due to weight distributions. Install the Power Supply units and HDDs into the E12 only when in the locked position secured with the front screws.

7. The E12 has a rear perforated cover panel that attaches with four #10 screws. This cover may be installed after the cabling connections.

HDD Installation on SMS Attached Libraries

The SMS unit is shipped without the HDD drives installed. The HDD drives, in their own shuttles, are packaged separately, along with blank shuttles to fill any empty drive slots in the SMS.

To mount the drives into the unpopulated slots of the SMS, prepare each HDD drive shuttle by pushing the release lever lock to the right to pop out the release lever. Then fully insert each HDD drive shuttle into the SMS and push the release lever all the way in to lock the drive shuttle in place.

Release Lever

Release Lever Lock

Figure 20. A12 SMS HDD Carriers

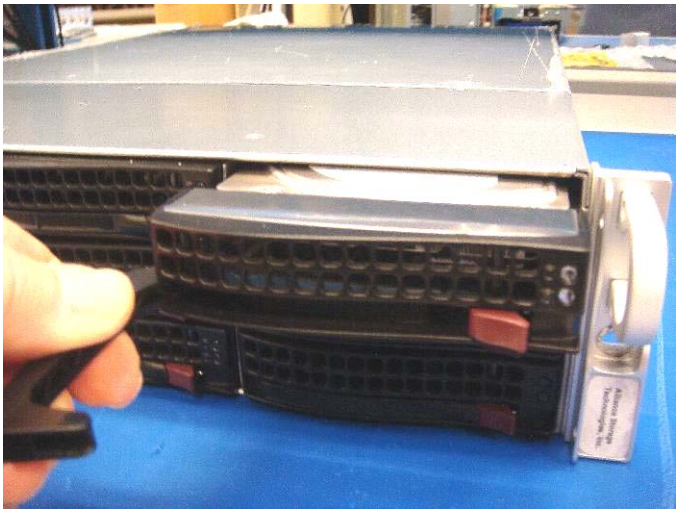


Figure 21. E12 SMS HDD Carriers

If the setup is for two HDD Drives, mount them in the left most positions of the top row of the SMS. If the setup is for eight HDD drives, mount them in the bottom two rows of the SMS. Mount blanks in the rest of slots if the setup is for less than twelve HDDs.

Initial Media Loading

Use only Alliance approved ISO standard 5.25 inch UDO or MO media in the library, depending on the type of drives installed in the library.

Media is initially loaded in bulk into the library by the manual mass loading method before the SMS or host is configured and without power applied to the library.

1. Ensure that the library is turned off and that the power cables are disconnected from the power inlets.
2. Using the enclosed key, open the rear door of the library system.
3. Insert the media into the slots with the shutter end of the media going in first.

NOTE

There are no requirements for loading media in a specific order. Alliance recommends filling the storage slots in numerical order, starting with slot number one. See the storage slot map on the inside of the rear door, or the diagrams in the Storage Slot Identification section, page 129.

4. Insert the media completely into the storage slot until it contacts the back of the slot.

Figure 22. ***Mass Loading Media***

5. Continue loading all media into the storage slots.
6. Close and lock the rear door.

Cable Connections

Open the front door from the right-hand side to access the power switch, the power cable connector, the power strip (AA models only) and the SCSI connectors. Unlock the door with the supplied access key.

Power Connection

The power receptacles for the SMS are located at the top rear of the unit. The library receptacle is at the bottom front of the library. Do not apply power until directed later.

CAUTION: Power Disconnect

The Power Supply Cord is used as the main disconnect device. Ensure that the service outlet is located near the equipment and is easily accessible.

WARNING: Multiple Power Sourced Equipment

Some models of this equipment are powered by multiple sources. Disconnect the SMS power by unplugging two power supply inlets at the left rear of the unit and disconnect the library power by unplugging the power cord from the power entry module at the lower front of the library. Also disconnect the power cord at the power strip inlet receptacle if present.

WARNING: High Leakage Current Equipment

AA638 and Elite AA638 series equipment has high leakage current. Earthing connection to the chassis by an industrial plug cord set must be established before connecting power until after power is disconnected to prevent hazardous shock. (See Power Cord Set requirements on page 83.)

Lower Library Power

1. Route the power cable through the bottom of the library to the power entry module.

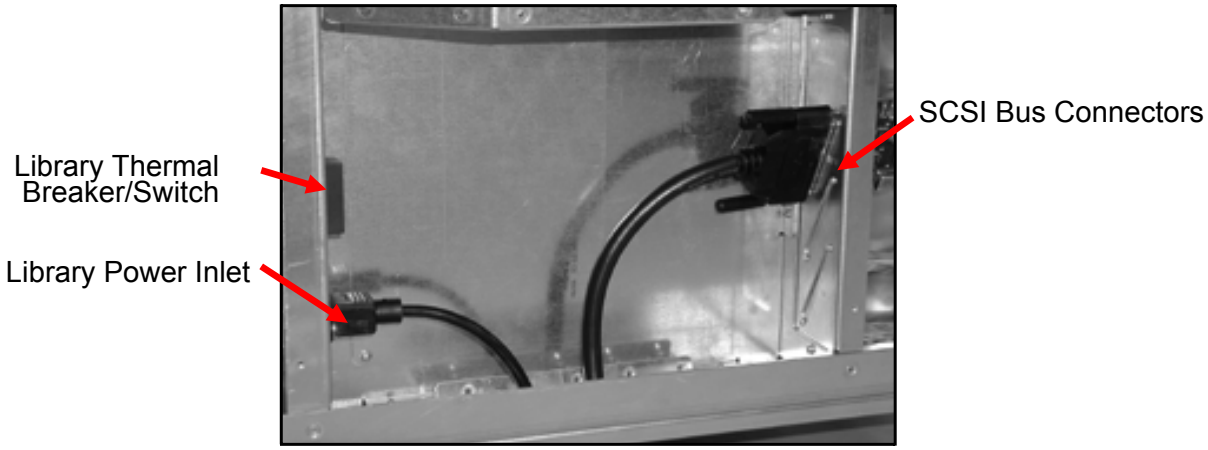


Figure 23. ***G638 Power and SCSI Connection***

Elite Models: The power source cord set is plugged into the inlet of a power strip mounted at the lower front of the library. A short jumper is routed from the power strip to the library power entry module and breaker. A 3 meter jumper is routed internally from the power strip through the rear enclosure corner support member to avail power at the top of the unit for the E12 SMS Y power cord set.

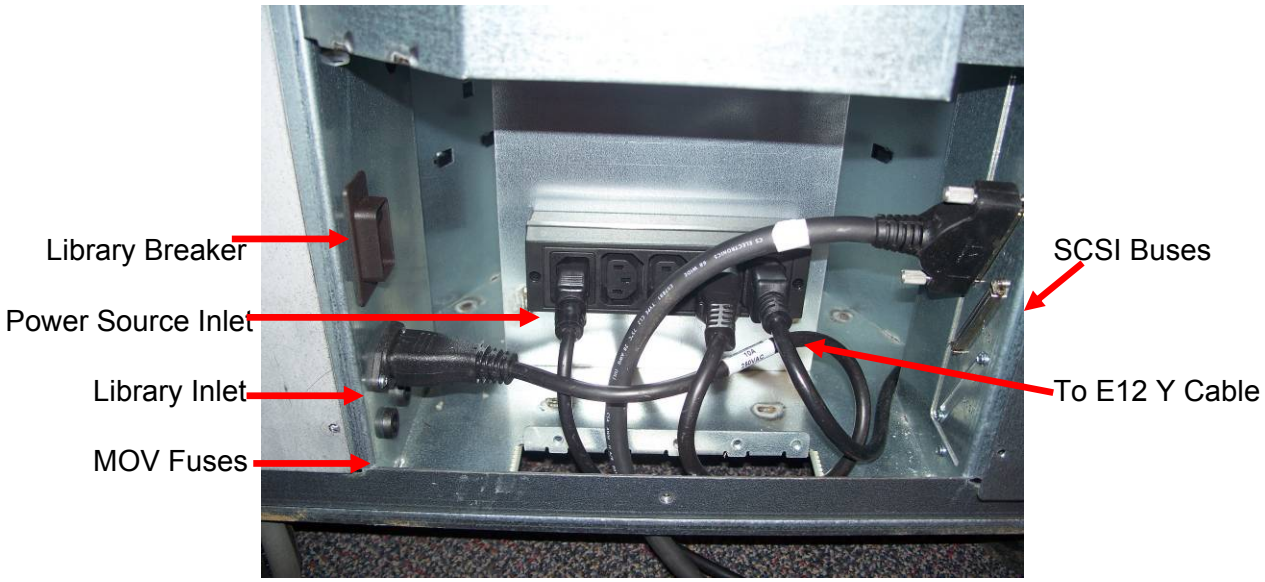


Figure 24. ***Elite G638 Power with E12 and SCSI Extension Cable***

Upper SMS Power for A12 SMS

When installing Elite E12 SMS models, skip to step 5.

2. On A12 SMS models mount the two long cable ducts on the left side of the back door, one at the top and one at the bottom.

Figure 25. Back Panel Long Cable Ducts for A12 SMS

Note: The long cable ducts can also guide the SCSI, Ethernet, and UPS cables.

3. Connect two short cord set jumpers from the A12 power supply inlets to the power strip mounted at the rear of the upper rack.

4. Install a secondary system power cord set from a UPS power source through the long cable ducts to the inlet of the power strip next to the A12 SMS.

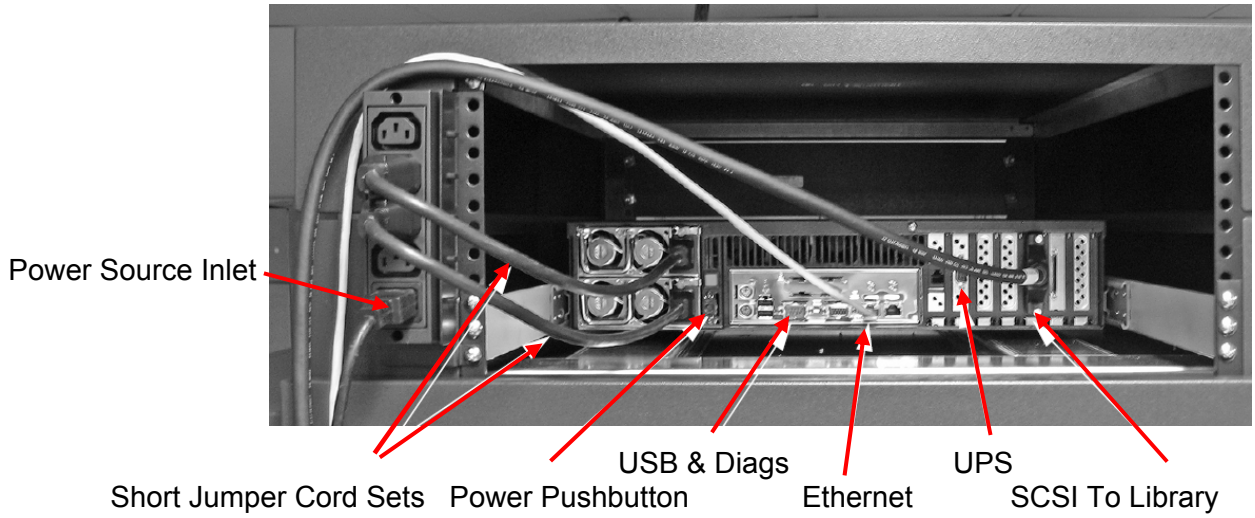


Figure 26*. AA638 Rear Cabling with A12 SMS Power*

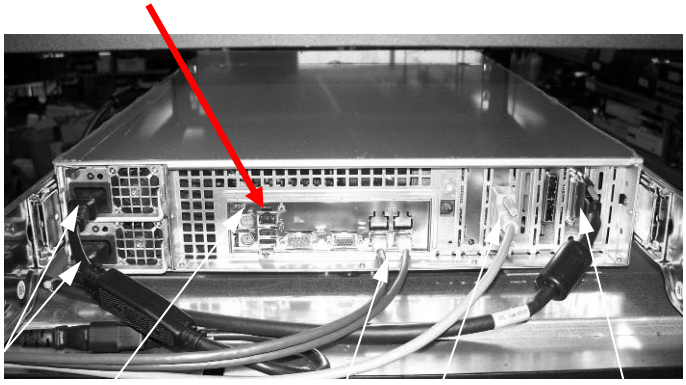
Upper SMS Power for E12 SMS

5. The E12 SMS is configured with an Elite Series Library that has a single power source cord set entering at the bottom front Power strip. Internally, another cord set is routed through the rear chassis post. Connect a 'Y" power cord set adapter from the AC connector at the top of the post to the two power supply inlets of the E12 unit. Restrain both sides of the adapter plug junction using two cable ties.

Figure 27. Elite SMS Power Cord Set Connection

NOTE:

The third Ethernet RJ45 connector shown below is not used. Connect network cables only to the other two Gigabit ports.



SMS Power USB/Diags Ethernet 2x UPS SCSI to Library

[Power Button is on front left handle of Elite SMS]

Figure 28. Elite SMS Back Panel

SCSI Connection

Stand-alone libraries (non-AA) require a host computer with a dedicated Ultra 320 LVD SCSI host bus adapter for each of the three configured buses. Alternately, the AA models control the library via a SCSI cable. *Note that all SCSI termination is provided internally.* See SCSI Bus Information, page 89, for external cable requirements. Also, for AA models with an extension library, see the Extension Library Kit Installation section of this manual.

With the library powered off, install the following SCSI cables as needed:

External Host SCSI to Library

Route up to three SCSI cables through the lower front access hole of the library to the desired SCSI bus LVD HD68 connectors. Gently secure the thumbscrews.

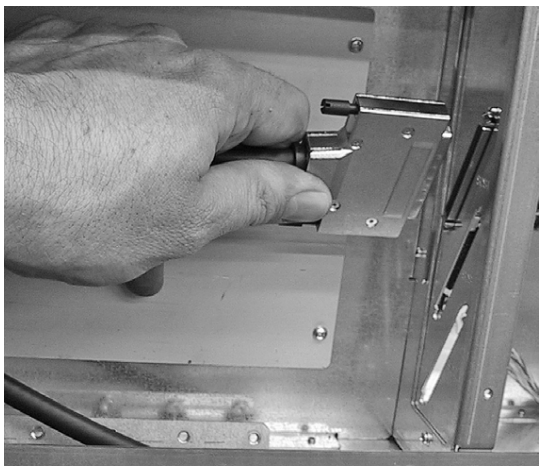


Figure 29. G Enterprise Front Bottom SCSI Bus Connections

A12 SMS to Library SCSI

Mount at least three short cable ducts under the library to route the A12 SCSI cable to the front-bottom cable opening of the library as shown below.

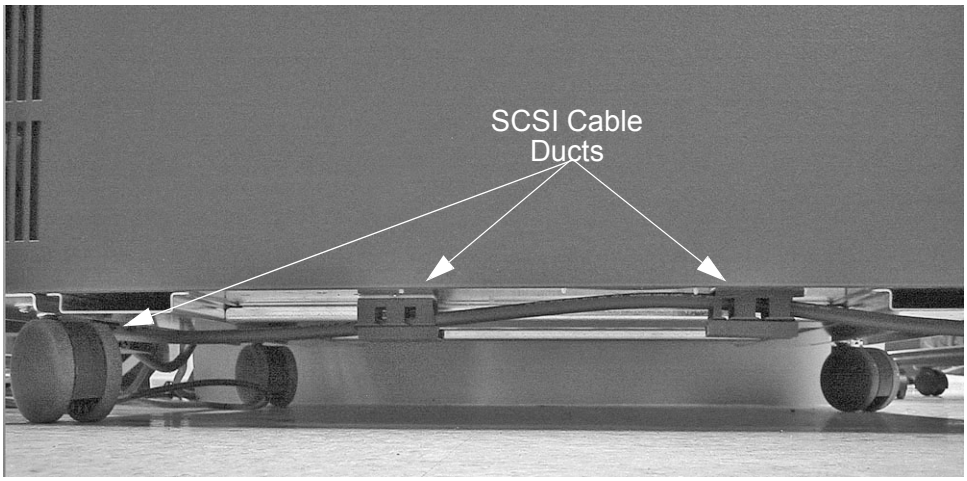


Figure 30. A12 SMS Bottom Short Cable Ducts

Route the 4m SCSI cable from the A12 slot 2 HD68 SCSI connector through the long vertical guides on the rear door, through the short cable guides under the chassis, through the lower front access hole of the library to the HD68 SCSI bus connector of the Re-driver PCA. Gently secure the thumbscrews.

Internal E12 SMS SCSI to Library

Route the 1.2m SCSI cable from the E12 slot 2 VDHCI68 SCSI card connector internally over the top of the E12 to the upper front HD68 SCSI bulkhead connector of the library. Gently secure the thumbscrews.

External SMS SCSI to Optional Extension Library

An optional dual SCSI interface kit can be supplied for the AA638-A12 series and the Elite AA638 series to support a second extension library unit. The Elite series uses a dual SCSI plug-in card to extend a SCSI connection via a duplicate internal cable routed down through the lower library unit. A Re-driver PCA SCSI HD68 connector drives an external cable to the extension library. The AA638-A12 series extension SCSI is connected directly from the A12 via a VHDCI SCSI plug-in card, through the long cable guides and to the extension library.

Ethernet, UPS, Diagnostics, and USB Cable Connections

Refer to the above figures for connector positions behind the A12 and E12 SMS units.

1. The USB connectors are available for installing a USB Boot Drive flash memory stick as required for service technicians and for safe copying of archive personality parameters.

2. The DB9 diagnostics connector, keyboard, mouse, and video connectors are provided only for Alliance trained service personnel use. Refer to the *AA SMS Service Manual* for details.

3. Two Gigabit Ethernet port connectors are provided for all network data communications in and out of the AA system. Shielded CAT6 cabling is required for full speed operation. For network setup, please refer to the *Archive Appliance Quick Start Guide*. *Do not use the third RJ-45 network connector located above the USB diagnostic connectors on the E12 SMS, as shown in Figure 28. Elite SMS Back Panel, page 39.*

4. The UPS connector is a standard male DB9 serial RS232 port for recommended communication with a local Un-interruptable Power Supply unit. (See Appendix B for UPS information.)

CAUTION

To avoid corruption of the RAID drives, do not power on the SMS unit until the library is mass loaded with media, powered on, and initialization is completed.

If the SMS unit is powered on before library initialization, it may be restarted from the Archive Appliance GUI interface.

Initial Power On

Follow all above installation procedures prior to initial start up:

1. Mass load UDO media into the library before powering on the system and perform all prior installation, power cabling and connection steps.

2. Lock the rear door and power up the recommended UPS.

3. Power on the library first by opening the front door, turning on the thermal breaker power switch at the front bottom of the library, and closing the front door. *(Do not energize the optional SMS or the host computer at this time.)*

The library takes a few minutes to inventory the initial bulk loaded media. When the process is completed, the front panel on G Series Libraries indicates that the library is on-line and ready for operation.

Figure 31. Front Panel Display at Power On, G Series

Error Indications

In the event of error indications on the panel display, go to page 52 for menu functions, or page 90 for error descriptions.

A12 SMS Power-Up

If the system is an AA model with an A12 SMS, turn on the A12 by pressing the power pushbutton at the rear of the SMS unit when the initialization and mapping has completed. Follow the Plasmon Archive Appliance SMS Service Manual procedures.

E12 SMS Power-Up

If the system is an AA model with an Elite E12 SMS, turn on the E12 by pressing the power pushbutton on the front left-hand mounting bracket display panel of the SMS unit when the initialization and mapping has completed. Assemble the perforated rear hood panel with thumbscrews. Follow the Plasmon Archive Appliance SMS Service Manual procedures.

Host Computer

Turn on the host computer system and follow the management software power-up instructions. If the host was already operating, it may be necessary to reboot the host computer for it to

recognize the library as a new device. Some modifications to the host hardware or operating system may be necessary for it to recognize the library. These modifications may include patches, driver updates, or modifications to the configuration files. Please consult the host hardware or operating system documentation to see if any of these modifications are necessary. Then if necessary, contact the hardware or software vendor for the appropriate patch or update.

CAUTION

To avoid corruption of the HDD drives, do not power on the SMS until the library is mass loaded with media, powered on, and completes initialization.

If the SMS is powered on before library initialization, it must be restarted from the Archive Appliance GUI interface.

CAUTION

To shut down the archive appliance always use the network GUI interface to initiate orderly shut down of the RAID system. Never hold the SMS unit rear power switch or front panel power switch.

4. After initial power on, the Archive Appliance software must be configured. Please refer to the software *Quick Start Guide* on the provided resource CD.

Chapter 3
Operation

Power On/Off

Power-up the library by switching on the library breaker first, allowing the initialization and media mapping to complete, then turn on the AA SMS unit push-button second.

To power down the non-AA model libraries, stop the host activity and turn off the lower front breaker switch of the primary library and of the extension library if present.

Powering-down the AA model libraries requires the use of the GUI and a console terminal to prevent data loss. During service, the library is operated in the stand-alone mode via the front panel display.

CAUTION: Power-down

To avoid data loss on AA model systems do not use the power pushbutton on the mounting ear panel (E12 only) or the rear of the AA SMS to turn off power. The proper shutdown method described below must be followed:

1. From the GUI, select **Shutdown > Shutdown** to power off the Appliance.
   or
   From the CLI run:
   ```
   /etc/init.d/smb stop
   /etc/init.d/nfs stop
   ssm stop
   poweroff
   ```

2. When the SMS turns off, manually switch off the breaker at the lower front of the library unit(s).

SMS Unit LED Indicators

Three LED indicators are located on the left front of the A12 unit for Power, Over-Temperature and Fan Fail. A blue light indicates proper conditions, red indicates a fault.

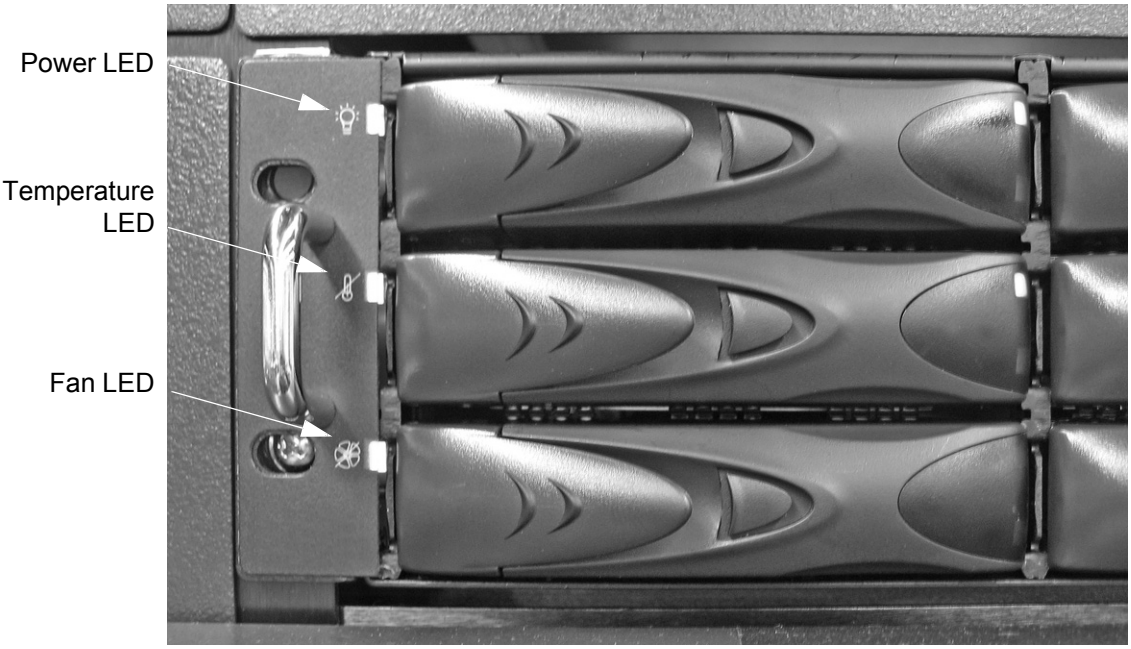


Figure 32. A12 Unit LED Indicators

Two LED indicators are located at the right front corner of each SATA drive shuttle. The top blue LED indicates a drive is powered on. The bottom LED lights blue to indicate drive activity, or red to indicate a drive fault.

Figure 33. SATA Drive LED Indicators

The front left handle of the Elite SMS has the indicators and switches shown below:

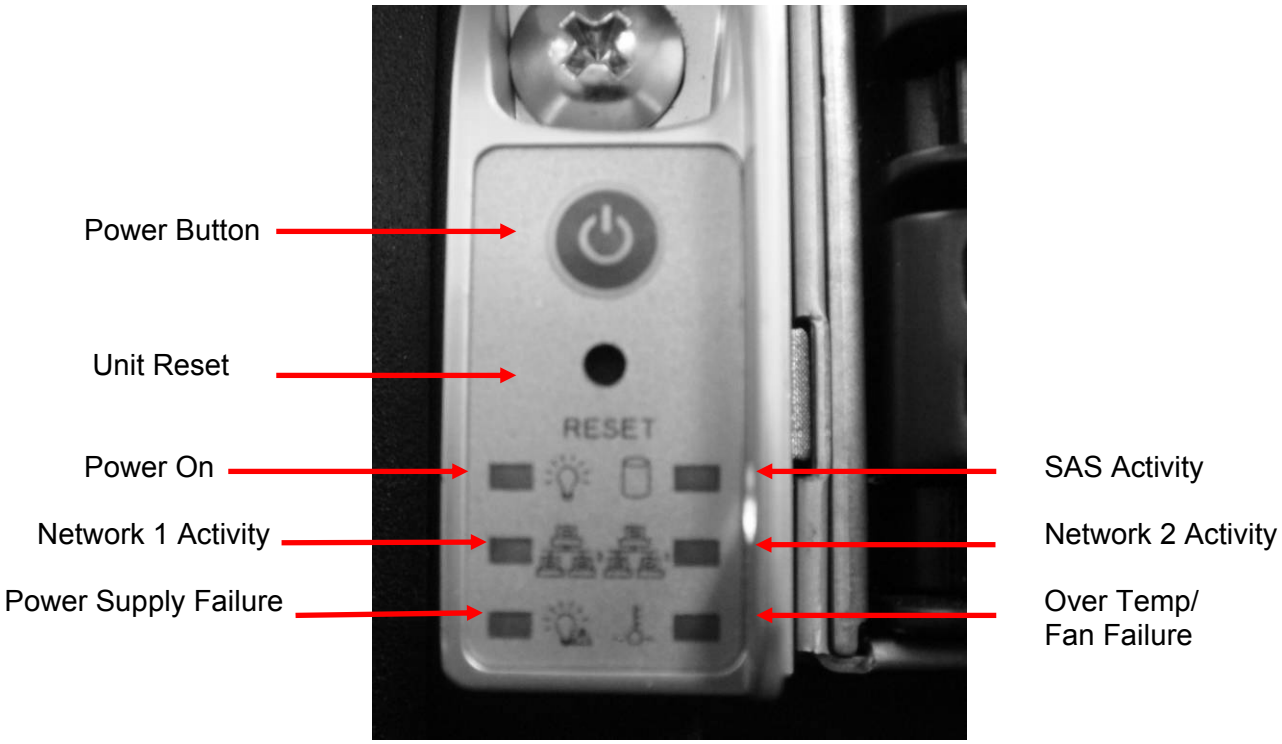


Figure 34. Elite SMS Alarm Indicators

Elite HDD Carriers show the following indicators:

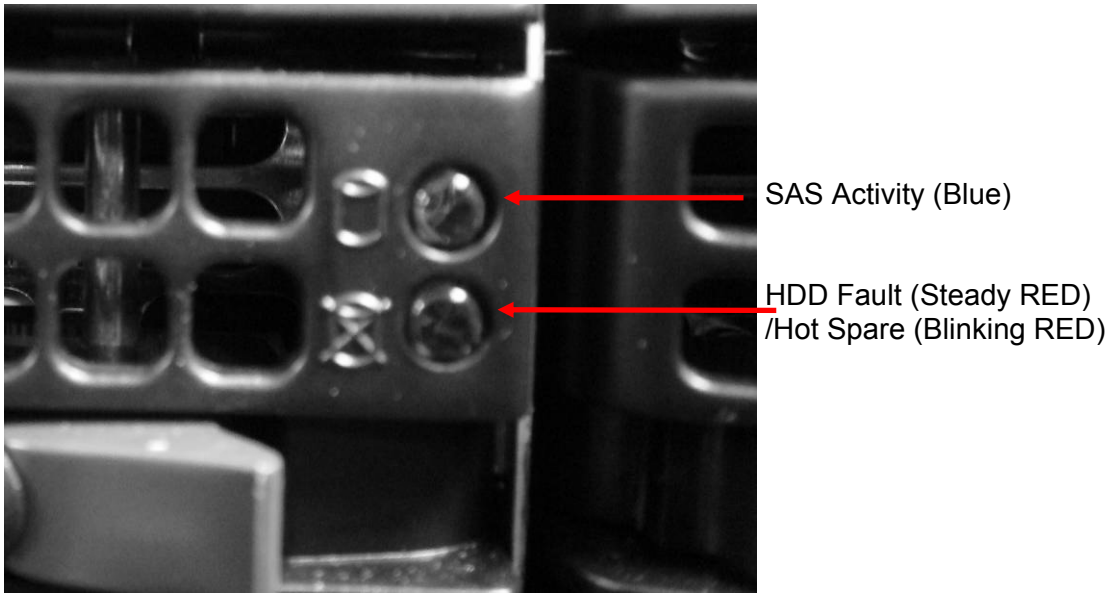


Figure 35. Elite SAS HDD Carrier LEDs

Loading Media

Use only Plasmon approved ISO standard 5.25 inch UDO or MO media in the library, depending on the type of drives installed in the library. Media is loaded into the library using one of three methods.

- **Mass Loading (recommended):** This method is used to manually bulk load the entire library with media without power applied to the library. Alliance recommends mass loading during initial installations and major changes of media.
- **Automated Mailslot:** This is intended for importing and exporting a single piece of media while the library is on-line.
- **Ten Slot Magazine:** This is intended for importing and exporting up to ten pieces of media in a removable bulk load magazine while the library is on-line. (Applies for G and Elite G series.)

Mass Loading

This loading method is detailed in the Initial Loading section. See page 35.

Automated Mailslot

The automated mailslot is the default method for importing and exporting single media while the library is on-line. Operate the automatic mailslot only after performing all initial power on procedures.

Figure 36. Using the Mailslot

Using the front panel display, a single piece of media can be imported or exported through the mailslot door. Once the appropriate button is selected on the front panel, the door opens automatically and a media carrier extends outward to accept a media. Insert a piece of media into the carrier so that the shutter end of the cartridge goes in first. Select the appropriate button on the front panel display to close the mailslot door.

The library management software is also used to open and close the mailslot door. The host computer handles this operation.

CAUTION

Do not attempt to load media in the mailslot until the media carrier is extended through the open door. Never open the mailslot door manually.

Ten Slot Magazine (Stand-alone Libraries Only)

The ten-slot bulk load magazine loads ten pieces of media at one time. To use the magazine:

1. Release the magazine from the library using the Release Magazine menu option on the front panel display. Refer to *page 56* Table 5. Main Menu Selections.
2. Remove the magazine from the library.
3. Open the media catch lever.
4. Load media into the magazine.
5. Close the media catch lever.
6. Replace the magazine into the library.

Navigating the Menu System – G Series

The Plasmon G-Series and Elite G-Series library modes and functions are controlled using four selection buttons located on the front panel. A liquid crystal display (LCD), located directly above the buttons, provides system status and other important information.

Figure 37. LCD Display Format

The **description line** displays the number and name of the mode or test when navigating menus. Periods (...) following a name indicates that the selection contains submenus.

The **selection button indicators** display the function of the four buttons located directly below the indicator. A dash above a button means that no function is associated with this key. The following LCD Symbols table provides an explanation of each symbol.

Table 3. LCD Symbols

LCD Symbol	Meaning
	Enter a menu selection
	Exit a menu selection
	Change a mode selection
	Switch to display scroll mode
√	Confirm a selection
	Decrement a numeric value or scroll display up
	Increment a numeric value or scroll display down
	Go to the previous menu item
	Go to the next menu item
	Open the mail-slot
	Display a list of menu items
	Run a motor or execute a function
•	Indicates a drive is turned off or not present
●	Indicates a media exists in an element
—	Indicates the element is empty
?	Indicates an error condition
→∅	Clear counter

Power Up Menu Options

The following operations can be performed at the initial power up stage:

- Entering the library's main menu system
- Opening or closing the mailslot
- Viewing error information

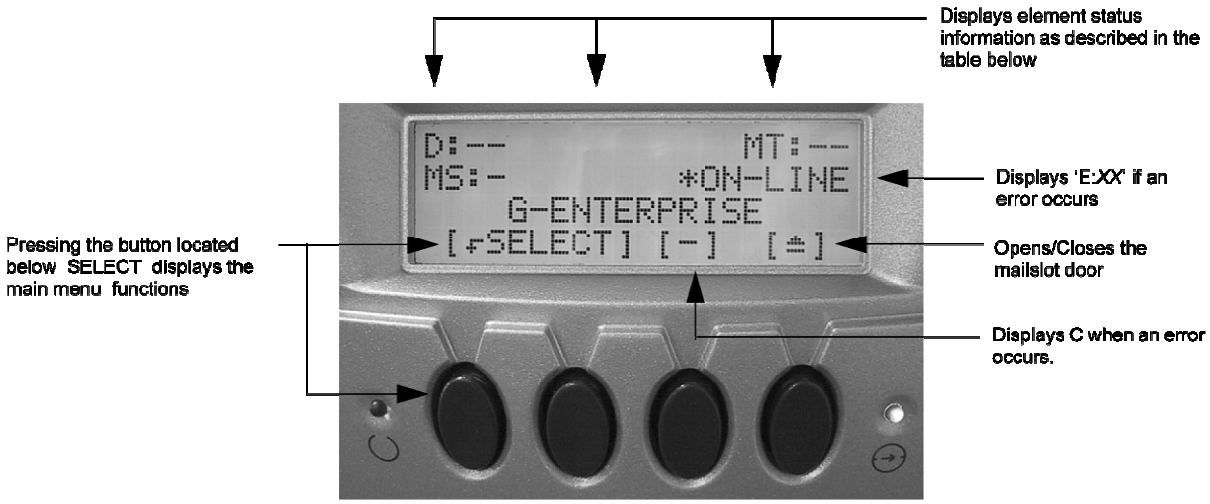


Figure 38. Power Up LCD Display

Table 4. Power Up LCD Symbols

Symbol	Meaning
D	Drive status (drive present, media present)
MT	Media Transport Assembly status (media present)
MS	Mailslot status (media present)
MAG	Ten Slot Magazine installed (Y or N)
–	Empty element or button not used
●	Media in element
•	Indicates a drive is turned off

Menu System Overview

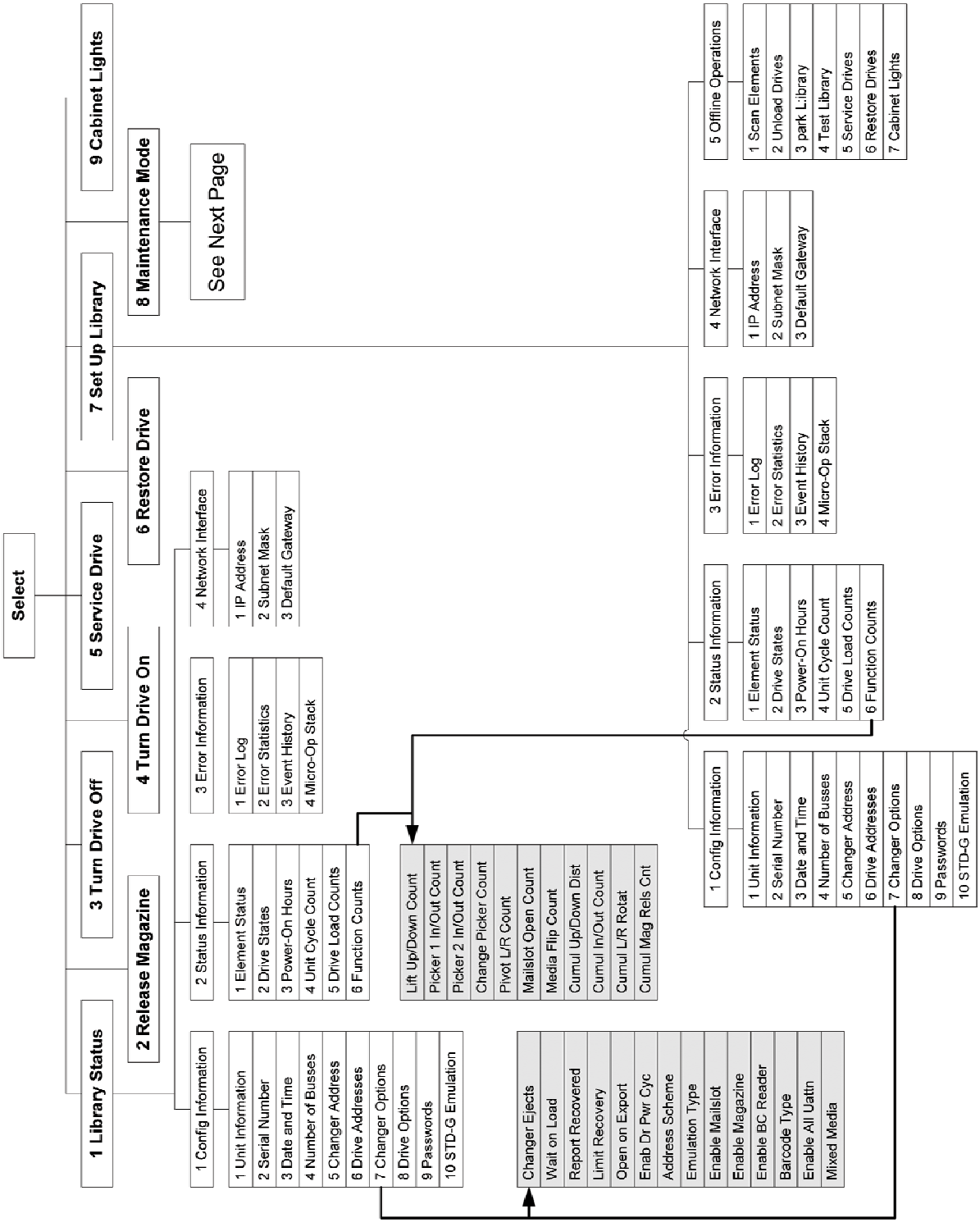


Figure 39. Menu System Overview (sheet one)

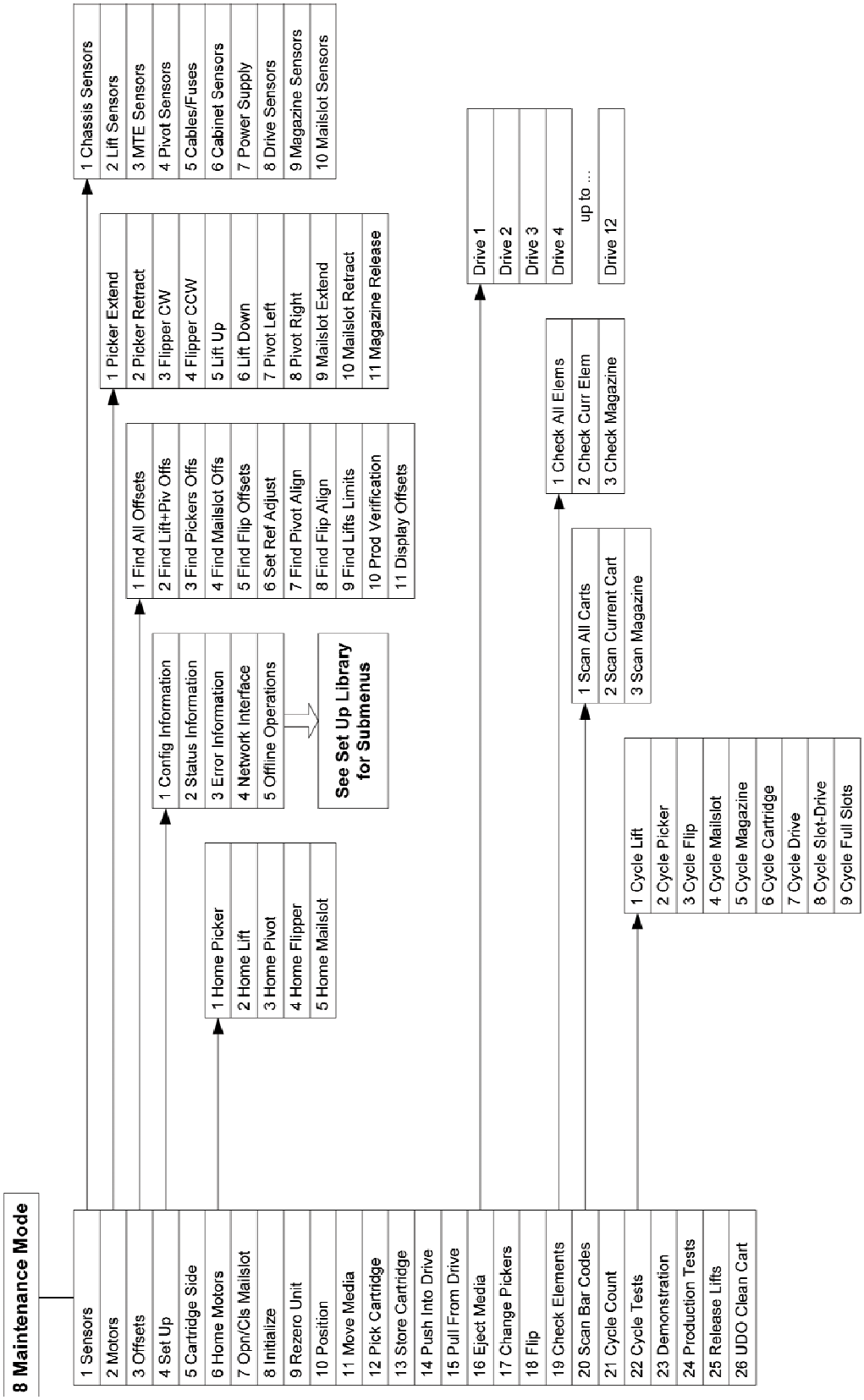


Figure 40. Menu System Overview (sheet two)

Main Menu Overview

The G-Series library front panel display menu system starts with nine top-level options. To cycle through the options at any level press [SELECT]. To enter a selection press [ ].

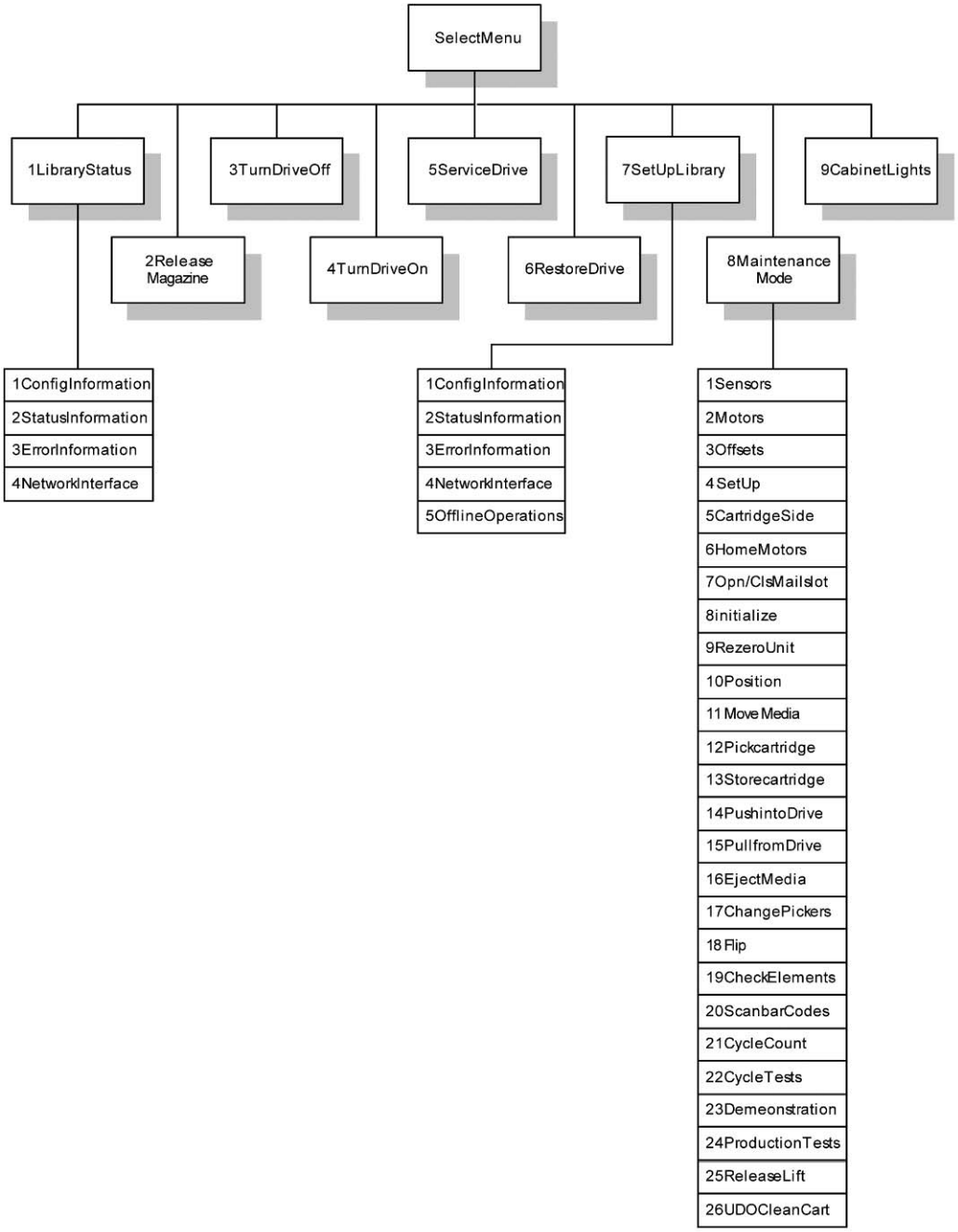


Figure 41. Main Menu Overview

Table 5. Main Menu Selections

Menu Selection	Description
1 Library Status	Allows viewing only of library settings. To make changes, use the Set Up menu.
2 Release Magazine	Use to release the magazine from the library.
3 Turn Drive Off	Use to turn off individual drives. Drives may not be hot-swapped in this mode. For password protected operations, the factory default password is "AAAA".
4 Turn Drive On	Use to turn on individual drives. For password protected operations, the factory default password is "AAAA".
5 Service Drive	Use to remove power from the drive to allow removal or replacement. For password protected operations, the factory default password is "AAAA".
6 Restore Drive	Use to restore power to the drives after removal or replacement. For password protected operations, the factory default password is "AAAA".
7 Set Up Library	Allows viewing and changing of library settings. When performing operations from the Set Up menu, the library is taken off-line.
8 Maintenance Mode	Allows testing, setting up, or configuring the library. When performing operations from the Maintenance Mode menu, the library is taken off-line. These operations are reserved for Plasmon authorized service personnel. For password protected operations, the factory default password is "AAAA".
9 Cabinet Lights	Use to turn the cabinet lights on or off.

Library Status Menu Overview

Use the Library Status menu to view the library's status only. To make changes to the library's status, use the Set Up menu.

The figure below shows the Library Status menu options.

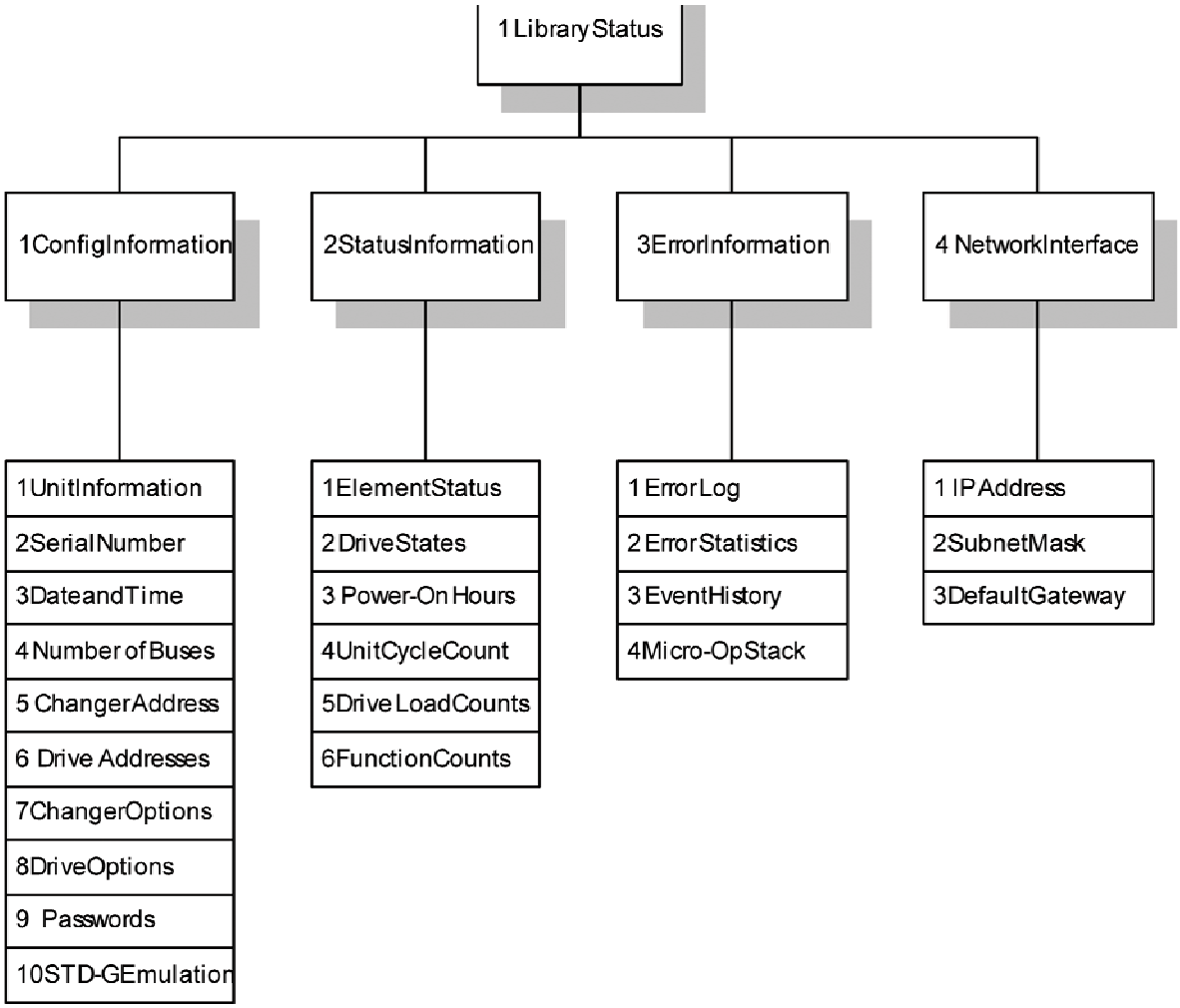


Table 6. Library Status Menu Options

Menu Selection	Description	Factory Defaults
1 Config Information	Allows viewing only of library configuration settings.	--
1 Unit Information	To view the storage slot count, drive count, and firmware revision.	--
2 Serial Number	To view the serial number assigned to the library.	--
3 Date and Time	To view the current date and time settings.	--
4 Number of Buses	To view the number of SCSI buses the library uses.	--
5 Changer Address	To view the changer SCSI ID.	--
6 Drive Addresses	To view individual drive SCSI IDs.	--
7 Changer Options	To view changer options: Changer Ejects (Y/N) Wait on Load (Y/N) Report Recovered (Y/N) Limit Recovery (Y/N) Open On Export (Y/N) Enab Dr Pwr Cyc (Y/N) Address Scheme (1) Emulation Type (0/1) Enable Mailslot (Y/N) Enable Magazine (Y/N) Enable BC Reader (Y/N) Bar Code Type (1/2) Enable All Uattn (Y/N) Mixed Media (Y/N) The Mixed Media option does not show if STD-G Emulation is set.	 Y N N N Y N 1 1 Y N Y 2 N Y
8 Drive Options	To view drive options. Write Cache Enable (Y/N) Verify on Write (default Y/N) DASD Inq Respons (Y/N)	 N Y N
9 Passwords	This option is not available when library is online.	--
10 STD-G Emulation	To view emulation configuration of library.	--
2 Status Information	Allows viewing only of library status.	--
1 Element Status	To view which elements (slots, drives, pickers, or I/O stations) are populated by media.	--
2 Drive States	To view the power on/off state of a drive.	--
3 Power-On Hours	To view total hours of power to library. Useful for preventive maintenance. Cannot be reset.	--
4 Unit Cycle Count	To view total cycle count since first startup. Cannot be reset.	--

Table 7. Library Status Menu Selections

Menu Selection	Description	Factory Defaults
5 Drive Load Counts	To view total drive loads since last reset of count.	--
6 Function Counts	To view total function counts since last reset of count. Lift Up/Down Count Picker 1 In/Out Count Picker 2 In/Out Count Change Picker Count Pivot L/R Col Count Mailslot Open Count Media Flip Count Cumul Up/Down Dist Cumul In/Out Dist Cumul L/R Rotat Cumul Mag Rels Count	--
3 Error Information	Allows viewing only of library error information.	--
1 Error Log	To view a chronological list of last ten errors since log was last cleared.	--
2 Error Statistics	To view a list of the ten most frequent errors since list was last cleared.	--
3 Event History	To view the SCSI command event history since it was last reset. Only SCSI commands which affect library operations are recorded.	--
4 Micro-Op Stack	To view a list of operations performed for the last failing SCSI command. These micro operations include position, position and flip, pick, store, load, and unload. The list includes forward and backward operations (media movement, and undo and retry for attempted failure recovery). This log is cleared whenever the system is initialized.	--
4 Network Interface	Allows viewing only of library network interface information.	--
1 IP Address	To view the IP address set for the library.	--
2 Subnet Mask	To view the subnet mask set for the library.	--
3 Default Gateway	To view the default gateway set for the library.	--

Table 8. Set Up Library Menu Overview

Use the Set Up Library menu to change the library's status. When performing operations in the Set Up Library menu, the library is taken off-line.

The figure below shows the Set Up Library menu options.

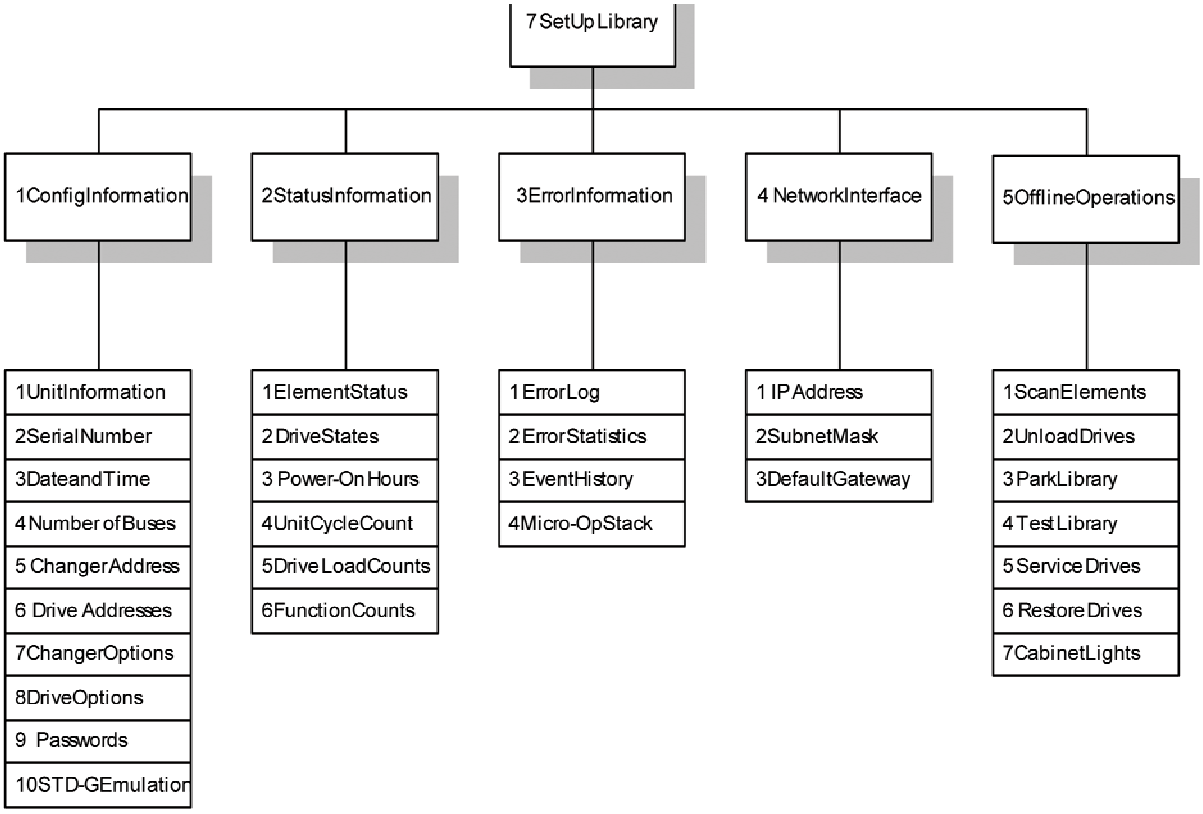


Figure 42. Set Up Library Menu Options

Table 9. Set Up Library Menu Selections

Menu Selection	Description
1 Config Information	Allows viewing and editing of library configuration settings.
1 Unit Information	To view the storage slot count, drive count, and firmware revision.
2 Serial Number	To view the serial number assigned to the library.
3 Date and Time	To view/edit the current date and time settings.
4 Number of Buses	To view/edit the number of SCSI buses in the library. Change this number if the number of host adapters is changed.
5 Changer Address	To view/set the changer SCSI ID.
6 Drive Addresses	To view/set individual drive SCSI IDs.
7 Changer Options	To view/edit changer options.
Changer Ejects	To enable library control to eject media from the drives.
Wait on Load	To cause library to wait until a drive spins up and is ready before the next command is executed.
Report Recovered	To cause library to report errors recovered from.
Limit Recovery	To cause library not to perform any transfers on a media that cannot be moved to a destination or returned to its original location. Media is left in the picker. If not set, an additional attempt is made to home all motors, check sensors and attempt to return media to its original location.
Open On Export	To cause mailslot to open automatically when media is placed in it.
Enab Dr Pwr	To cause library to cycle power to a drive that does not respond.
Address Scheme	To change the addressing for software compatibility.
Emulation Type	To emulate different libraries for software compatibility.
Enable Mailslot	To turn mailslot on for use.
Enable Magazine	To turn mailslot on for use.
Enable BC Reader	To turn bar code reader on for use.
Bar Code Type	To select bar code type I or II according to label type.
Enable All Uattn	To enable all unit attention conditions to the host computer.
Mixed Media	To enable library to support both MO and UDO media. The Mixed Media option does not show if STD-G Emulation is set.
8 Drive Options	To view/edit drive options.
Write Cache Enabl	To enable the write cache on a drive (MO drives only).
Verify on Write	To cause the library to issue a Write Verify command for all writes (MO drives only).

Menu Selection	Description
DASD Inq Response	To enable generation of the Direct Access Storage Device inquiry response string.
9 Passwords	To set or change passwords. To remove password protection from a menu selection, press the check mark without entering any letters. The factory default password is "AAAA". If a password is forgotten or lost, please contact Plasmon support.
10 STD-G Emulation	To view/set the standard G emulation mode. Set to “Y” for all MO library operation only.
2 Status Information	Allows viewing/editing of library status.
1 Element Status	To view/edit which elements (slots, drives, pickers, or I/O stations) are populated by media. Individual slot status can be set to full or empty.
2 Drive States	To view a drive’s on/off state.
3 Power-On Hours	To view total hours of power to library. Useful for preventive maintenance. Cannot be reset.
4 Unit Cycle Count	To view total cycle count since first startup. Cannot be reset.
5 Drive Load Counts	To view/reset total drive loads since last reset of count.
6 Function Counts	To view/reset total function counts since last reset of count. Lift Up/Down Count Picker 1 In/Out Count Picker 2 In/Out Count Change Picker Count Pivot L/R Col Count Mailslot Open Count Media Flip Count Cumul Up/Down Dist Cumul In/Out Dist Cumul L/R Rotat Cumul Mag Rels Count
3 Error Information	Allows viewing/clearing of library error information.
1 Error Log	To view/clear a chronological list of last ten errors since log was last cleared. The first on the list is the most recent. On exit the display lists the number of errors. Select the →Ø button to clear this list.
2 Error Statistics	To view/clear a list of the ten most frequent errors since list was last cleared. On exit the display lists the number of errors. Select the →Ø button to clear this list.
3 Event History	To view/clear the SCSI command event history since it was last reset. Only SCSI commands which affect library operations are recorded. On exit the display lists the number of events. Select the →Ø button to clear this list.

Menu Selection	Description
4 Micro-Op Stack	To view a list of operations performed for the last failing SCSI command. These micro operations include position, position and flip, pick, store, load, and unload. The list includes forward and backward operations (media movement, and undo and retry for attempted failure recovery). This log is cleared whenever the system is initialized. This error should be reported to Plasmon for decoding.
4 Network Interface	Allows set up of the library's network interface.
1 IP Address	To view/edit the IP address set for the library.
2 Subnet Mask	To view/edit the subnet mask set for the library.
3 Default Gateway	To view/edit the default gateway set for the library.
5 Offline Operations	Allows basic offline operations.
1 Scan Elements	To scan all elements.
2 Unload Drives	To unload the drives.
3 Park Library	To park the picker before shipping or moving the library. Also, remove all media before moving the library.
4 Test Library	To perform basic sensor and motor tests.
5 Service Drives	To turn a drive off and temporarily terminate the SCSI bus for drive replacement.
6 Restore Drives	To turn a drive on and remove temporary SCSI bus termination after drive replacement.
7 Cabinet Lights	To turn cabinet lights on and off.

Maintenance Mode Menu Overview

Use the Maintenance Mode menu to perform tests on, set up, or configure the library. When performing operations in the Maintenance Mode Library menu, the library is taken off-line. A password is required to enter this mode, or set up dip switch one on the main controller to “on” and cycle power.

WARNING

Entering Maintenance Mode disables the power interlock on the rear door so the library can operate with the door open. However, this may result in hazardous radiation exposure from the light source in the bar code scanner. Do not stare into the light source.

The following sequence of figures shows the Maintenance Mode menu options.

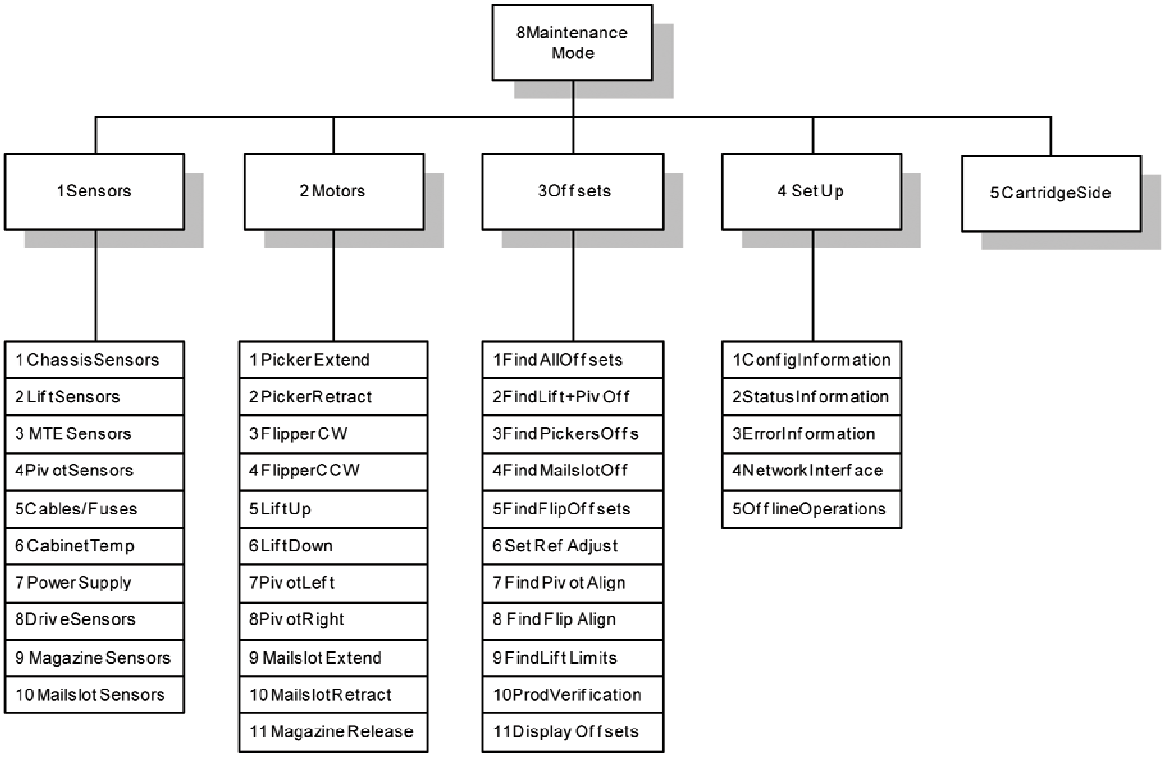


Figure 43. Maintenance Mode Menu Options 1-5

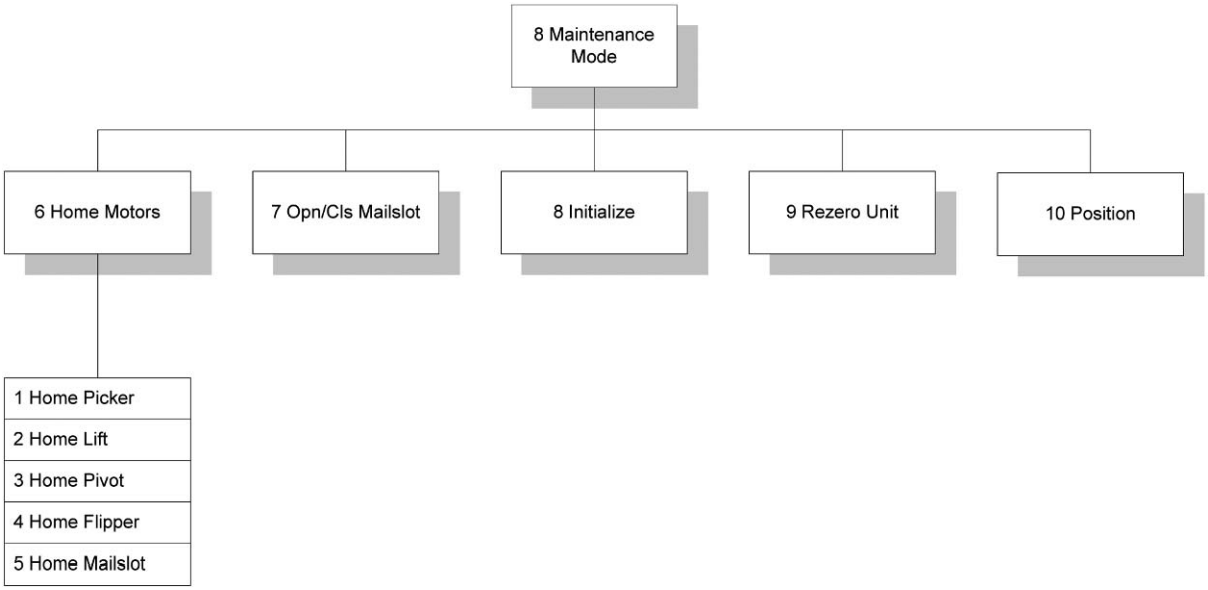


Figure 44. Maintenance Mode Menu Options 6-10

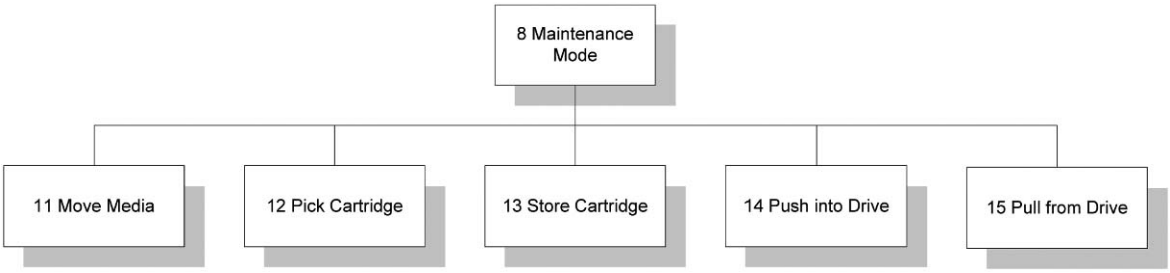


Figure 45. Maintenance Mode Menu Options 11-15

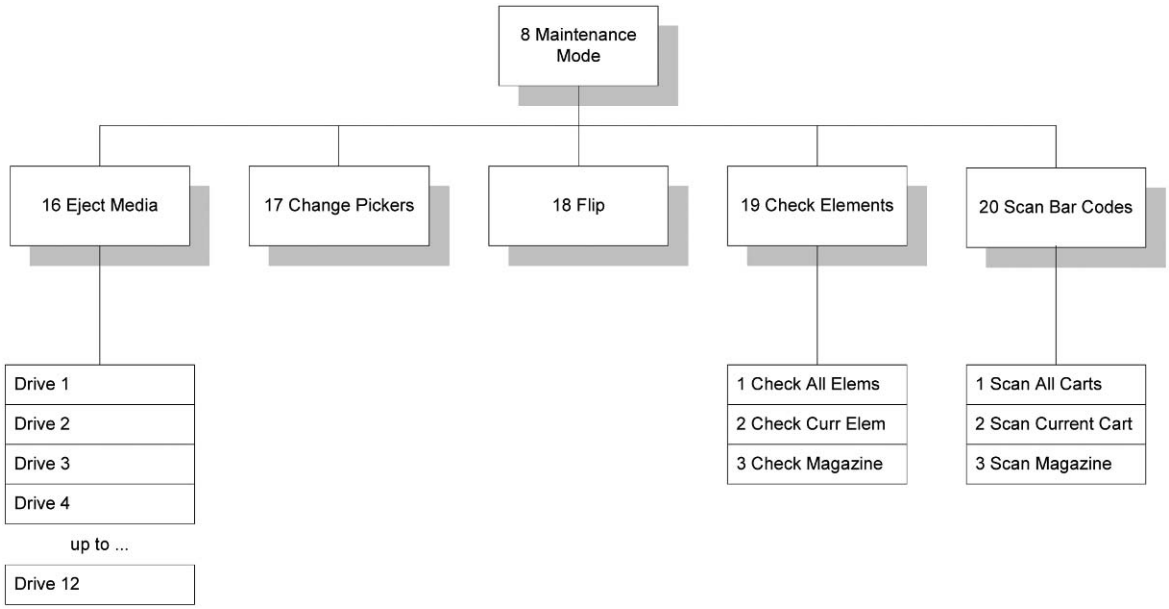


Figure 46. Maintenance Mode Menu Options 16-20

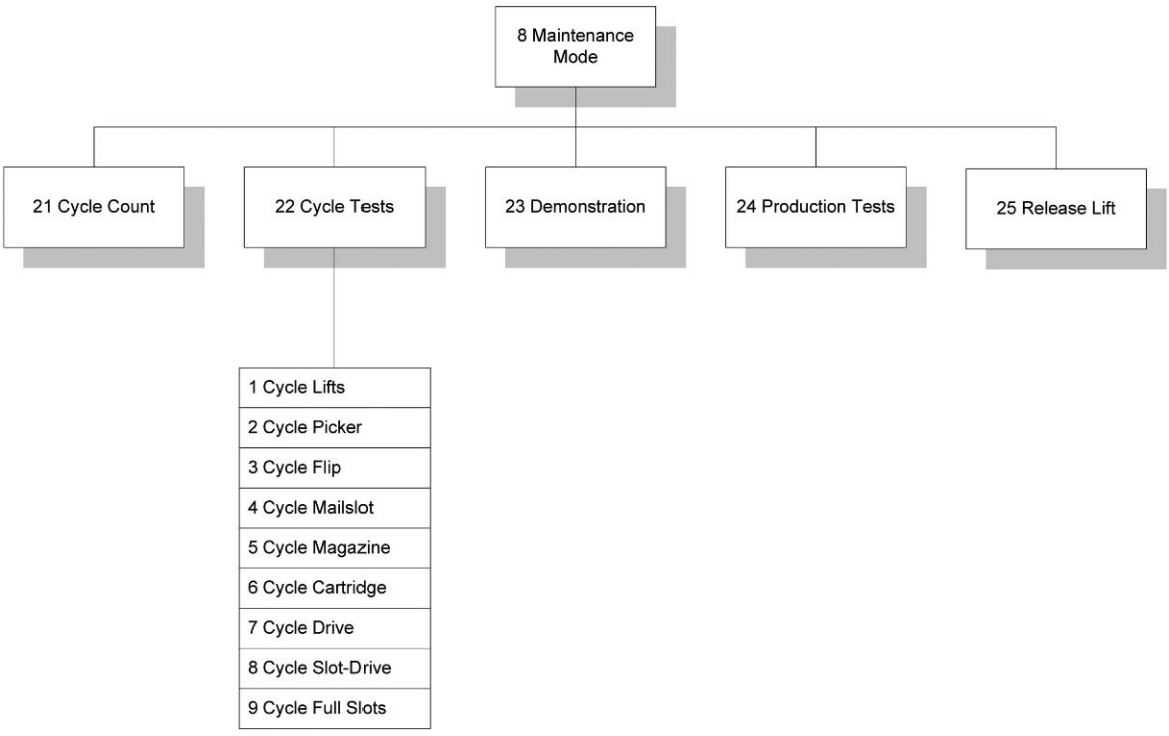


Figure 47. Maintenance Mode Menu Options 21-25

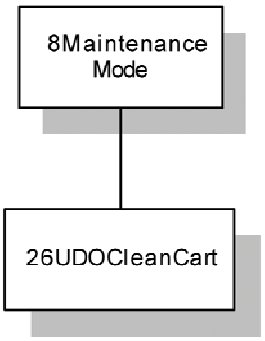


Figure 48. Maintenance Mode Menu Option 26

Table 10. Maintenance Mode Menu Selections

Menu Selection	Description
1 Sensors	Allows selection of individual sensors for manual testing. The state indicator on the LCD display is one when OPTO is blocked, and zero when OPTO is unblocked. There is also an audible tone each time the sensor changes state.
1 Chassis Sensors	
Vert Path-All Cols	All vertical path sensors can be checked here.
Vert Path-Col 1	To test column 1 individually.
Vert Path-Col 2	To test column 2 individually.
Vert Path-Col 3	To test column 3 individually.
Vert Path-Col 4	To test column 4 individually.
Vert Path-Col 5	To test column 5 individually.
Vert Path-Col 6	To test column 6 individually.
Vert Path-Col 7	To test column 7 individually.
Rear Door Open	Detects whether rear door is open or closed.
Reference Sensor	Sets the reference point for all the offset adjustments
Left Exp Installed	Detects the left expansion wing.
Right Exp installed	Detects the right expansion wing.
Main Controller SCSI Terminator Power	Detects internal LVD SCSI cable term power connecting to the main controller SCSI adapter. 1 = OK.
2 Lift Sensors	
Lift Home	Detects home position for the MTE.
Lift Current	Detects current position for the MTE.
Flipper Side A	Detects whether the A side of the MTE is up. 1 = A side is up (sensor is blocked by flipper A side flag).
Flipper Side B	Detects whether the B side of the MTE is up. 1 = B side is up (sensor is blocked by flipper A side flag).
3 MTE Sensors	
Picker 1 Home	Detects home position of picker 1.
Picker 2 Home	Detects home position of picker 2.
Picker Forward	Detects whether picker is in forward position. 1 = forward position, safe to move MTE to another slot.
Reference Sensor	Checks whether the Auto Offset sensor, emitter, and receiver are functional.

Menu Selection	Description
Auto Offset Sensor	To perform auto offsets.
Media Scan Opto	To detect media.
Media Scan Sensor	To detect media. 1 = media present. Located at the front of the MTE, used only during media scan.
UDO Sensor 1	To identify media type in picker 1. (0 = MO media, 1 = UDO media).
UDO Sensor 2	To identify media type in picker 2. (0 = MO media, 1 = UDO media).
4 Pivot Sensors	
Pivot Home	Detects home position of pivot assembly.
Pivot Align	Checks the sensor used to align the pivot with the column.
5 Cables/Fuses	
CJ4: Pivot/Lift/MTE	Monitors connection of pivot cable at CJ4 on main controller board and continuing through the pivot, lift, and MTE interface boards. 1 = proper operation.
CJ5: VP Sensor Enc	Monitors connection of cable from CJ5 on main controller board to the VP interface board. 1 = proper operation.
CJ7: Interlock Ifc	Monitors connection of cable from CJ7 on main controller board to the door interlock and reference sensor (for auto offsets). 1 = proper operation.
CJ12: SCSI Conv Ctl	Monitors connection of cable from CJ12 on main controller board to the SCSI external interface boards. 1 = proper operation.
F1: CAN Bus 24V	Monitors fuse 1 which powers the CAN bus interface at CJ3 with +24 volts on the main controller board. 1 = proper operation.
F2: CAN Bus 5V	Monitors fuse 2 which powers the CAN bus interface at CJ3 with +5 volts on the main controller board. 1 = proper operation.
F3: Lift Cable 24V	Monitors fuse 3 which powers the pivot, lift, and MTE interface at CJ4 with +24 volts on the main controller board. 1 = proper operation.
F4 Lift Cable 5V	Monitors fuse 4 which powers the pivot, lift, and MTE interface at CJ4 with +5 volts on the main controller board. 1 = proper operation.
F5: VP Dec Bd 5V	Monitors fuse 5 which powers the VP decoder interface at CJ5 with +5 volts on the main controller board. 1 = proper operation.
F6: MC SCSI Bd 5V	Monitors fuse 6 which powers the MC SCSI adapter interface connecting at CJ8 with +5 volts on the main controller board. 1 = proper operation.
F9: Ext SCSI Bd 5V	Monitors fuse 9 which powers the SCSI external interface boards connecting at CJ12 with +5 volts on the main controller board. 1 = proper operation.
F10: Lift Motor 24V	Monitors fuse 10 which powers the lift motor driver IC with +24 volts on the main controller board. 1 = proper operation.
F11: Steppers 24V	Monitors fuse 11 which powers all stepper motor ICs with +24 volts on the main controller board. 1 = proper operation.

Menu Selection	Description
6 Cabinet Temp	
xx° C or yy° F	Displays temperature inside the library. Push the ↤ key a second time for Fahrenheit reading.
7 Power Supply	
5V Supply	Displays voltage from the 5 volt power supply.
12V Supply	Displays voltage from the 12 volt power supply.
24V supply	Displays voltage from the 24 volt power supply.
CJ10: Power Supply IFC	Monitors cable connection from CJ10 on the main controller board to the power distribution board (power supply monitor interface cable). 1 = proper operation.
8 Drive Sensors	
Drive N	Select drive to check sensors.
9 Magazine Sensors	
Magazine in Place	Detects that magazine is present.
Magazine Latched	Detects that magazine is properly latched.
CJ8: Solenoid Cable	Monitors cable connection fromCJ8 on magazine/mailslot board to the magazine sensors and solenoid. 1 = proper operation.
Fuse F3: Solenoid	Monitors fuse 3 which powers the solenoid with +24 volts for the magazine release mechanism. 1 = proper operation.
10 Mailslot Sensors	
Mailslot Open	Detects mailslot open.
Mailslot Closed	Detects mailslot closed.
Media Inserted	Detects presence of media in mailslot via the Media Present sensor.
CJ4: Sensors Cable	Monitors cable connection from CJ4 on magazine/mailslot board to the mailslot sensors. 1 = proper operation.
Fuse F2: Solenoid	Monitors fuse 2 which powers the mailslot stepper motor with +24 volts. 1 = proper operation.
2 Motors	
1 Picker Extend	To move picker forward.
2 Picker Retract	To move picker backward.
3 Flipper CW	To rotate flipper clockwise.
4 Flipper CCW	To rotate flipper counter-clockwise.
5 Lift Up	To move lift upward.

Menu Selection	Description
6 Lift Down	To move lift downward.
7 Pivot Left	To rotate pivot to the left.
8 Pivot Right	To rotate pivot to the right.
9 Mailslot Extend	To extend mailslot.
10 Mailslot Retract	To retract mailslot.
11 Magazine Release	To cause solenoid to release magazine.
3 Offsets	
1 Find All Offsets	To find all offsets and automatically set the correct offset alignments.
2 Find Lift+Piv Off	To find lift and pivot offsets and automatically set the correct offset alignments.
3 Find Pickers Offs	To find picker offsets and automatically set the correct offset alignments.
4 Find Mailslot Offs	To find mailslot offsets and automatically set the correct offset alignments.
5 Find Flip Offsets	To find flipper offsets and automatically set the correct offset alignments.
6 Set Ref Adjust	Not applicable. Used for preproduction models.
7 Find Pivot Align	To find pivot alignment and automatically set the correct alignment.
8 Finf Flip Align	To find flipper alignment and automatically set the correct alignment.
9 Find Lift Limits	To find the lift limits.
10 Prod Verification	To verify that all offsets are within specifications.
11 Display Offsets	To display offset values.
4 Set Up	Allows access to the Set Up Library mode when Maintenance Mode is entered using the DIP switch on the main controller board.
1 Config Information	See the *Set Up Library Menu* section.
2 Status Information	See the *Set Up Library Menu* section.
3 Error Information	See the *Set Up Library Menu* section.
4 Network Interface	See the *Set Up Library Menu* section.
5 Offline Operations	See the *Set Up Library Menu* section.
5 Cartridge Side	To select whether flipping is done in Maintenance Mode cycle tests.
6 Home Motors	
1 Home Picker	To move picker to home position, and verify sensor function.
2 Home Lift	To move lift to home position, and verify sensor function.
3 Home Pivot	To move pivot to home position, and verify sensor function.
4 Home Flipper	To move flipper to home position, and verify sensor function.

Menu Selection	Description
5 Home Mailslot	To move mailslot to home position, and verify sensor function.
7 Opn/Cls Mailslot	Allows opening mailslot by pushing ⊢ key. Push again to close mailslot.
8 Initialize	To initialize the library. This option should be used before running any tests.
9 Rezero Unit	To return all media to original storage locations. This option should be used before running any cycle tests.
10 Position	To move the MTE to a new position.
11 Move Media	To move media to a new location.
12 Pick Cartridge	To cause MTE to pick a media. MTE must be located in front of a storage slot with a media, or it just goes through the motions.
13 Store Cartridge	To cause MTE to place a media in a storage slot. MTE must be located in front of an empty slot, and must have a media, or it just goes through the motions.
14 Push into Drive	To cause MTE to push a media into a drive. MTE must be located in front of an empty drive, and must have a media, or it just goes through the motions.
15 Pull from Drive	To cause MTE to pull a media from a drive. MTE must be located in front of a loaded drive, or it just goes through the motions.
16 Eject Media	To eject media from a selected drive.
1 Drive 1	To select drive.
2 Drive 2	To select drive.
3 Drive 3	To select drive.
4 Drive 4	To select drive.
up to...	
12 Drive 12	To select drive.
17 Change Pickers	To change between upper and lower picker.
18 Flip	To manually flip media.
19 Check Elements	To check empty/full status of elements.
1 Check All Elems	To check empty/full status of all elements.
2 Check Current Elem	To check empty/full status of current elements.
3 Check Magazine	To check empty/full status of magazine.
20 Scan Bar Codes	To scan bar codes.
1 Scan All Carts	To scan bar codes on all media.
2 Scan Current Cart	To scan bar code on current media.
3 Scan Magazine	To scan bar codes on media in magazine.

Menu Selection	Description
21 Cycle Count	To view/reset number of cycles executed in Maintenance Mode. Reset to zero by pushing the ↺0 key.
22 Cycle Tests	To perform cycle tests. Press the ⌐ key to stop test.
1 Cycle Lift	To cycle lift. Moves lift up and down, and positions it at random locations. LCD panel displays locations and cycle count.
2 Cycle Picker	To cycle picker in and out.
3 Cycle Flip	To cycle flipper mechanism.
4 Cycle Mailslot	To cycle mailslot open and closed. Test can be set to cycle between 0 and 1000 times in increments of 5.
5 Cycle Magazine	To cycle magazine door open and closed. Test can be set to cycle between 0 and 1000 times in increments of 5.
6 Cycle Cartridge	To cycle a media.
7 Cycle Drive	To cycle drive.
8 Cycle Slot-Drive	To cycle media between a slot and a drive.
9 Cycle Full Slots	To cycle media through all slots.
23 Demonstration	To place library in demonstration mode.
24 Production Tests	Not applicable. For use on factory production floor only.
25 Release Lift	To remove the lift motor voltage so lift assembly drops slowly.
26 UDO Clean Cart	Use only the Plasmon UDO30GB Cleaning Cartridge in UDO30 drives. Use only the Plasmon UDO60 Cleaning Cartridge in UDO60 drives. Follow the instructions on the cartridge case. There is also a demonstration presentation online at: http://www.plasmontech.com/customer/player.html.

Appendix A
Enterprise Series Specifications

Plasmon Enterprise AA-A12 and AA-E12 Elite Libraries

Specifications are subject to change without notice.

Table 11. AA164 - AA638 Specifications, A12 and Elite Series

Specification	AA164	AA238	AA438	AA638
Library Capacity (UDO30)	4.9TB	7.1TB	13.1TB	19.1TB
Library Capacity (UDO60)	9.8TB	14.2TB	26.2TB	38.2TB
Number of Media Storage Slots	164	238	438	638
Number of Drives	2, 4, or 6	2, 4, or 6	2, 4, or 6	2, 4, or 6
Drive Types Supported- A12	UDO30, UDO60	UDO30, UDO60	UDO30, UDO60	UDO30, UDO60
Drive Types Supported- ELITE	UDO60	UDO60	UDO60	UDO60
Library Reliability (MSBF)	>3.8M	>3.8M	>3.8M	>3.8M
Robotics Avg. Exchange Time	6.1 sec.	6.2 sec.	6.3 sec.	6.4 sec.
Picker Type	dual	dual	dual	dual
Automated Mailslot	single	single	single	single
Library Interface	Dual 10/100/1000 Base-T Ethernet			
Options	Redundant power supply, Extension Library			
Max Power	600 Watts			
Dissipation	1911 BTU/hr			
Power Requirements Rated Voltage/Current Frequency Operating Current	 100 - 240 VAC (universal) / A12: 17A, E12: 9.5A 50/60 Hz 4.7 Arms @ 120V, 6 UDO2 and redundant power			

Specification	AA164	AA238	AA438	AA638
Environmental				
Operating Temperature	+10 to +32°C (+50 to +90°F)			
Non-Operating Temperature	-30 to +60°C (-22 to 140°F)			
Gradient Temperature	10°C (50°F)			
Operating Humidity	10 to 80% RH non-condensing			
Non-Operating Humidity	10 to 95% RH non-condensing			
Space Requirements				
Width (in/cm)	56 / 142	56 / 142	56 / 142	56 / 142
Height (in/cm)	76 / 193	76 / 193	76 / 193	76 / 193
Depth (in/cm)	92 / 234	92 / 234	92 / 234	92 / 234
Minimum airflow: 3" behind unit and 2" on both sides				
Dimensions-Stand Alone				
Width (in/cm)	28 / 71	28 / 71	34 / 87	41 / 104
Height (in/cm)	76 / 193	76 / 193	76 / 193	76 / 193
Depth w/stabilizer (in/cm)	36 / 92	36 / 92	36 / 92	36 / 92
Depth (in/cm)	35 / 89	35 / 89	35 / 89	35 / 89
Weight (lbs/kg)	568/ 259	568 / 259	648 / 295	728 / 331
Dimensions-Shipping	Library without Bays		Expansion Bays shipped separately	
Width (in/cm)	37 / 94		34 / 86	
Height (in/cm)	77 / 196		72 / 183	
Depth (in/cm)	48 / 122		35 / 89	
Weight (lbs/kg)	670 / 305		198 / 90	309 / 141
Dimensions-Shipping	SMS and Mounting Rack shipped separately			
Width (in/cm)	40 / 102			
Height (in/cm)	A12 SMS: 35 / 89		Elite SMS: 41 / 104	
Depth (in/cm)	48 / 122			
Weight (lbs/kg)	A12 SMS: 164 / 75		Elite SMS: 187 / 85	

Plasmon Enterprise G and G Elite Libraries

Specifications are subject to change without notice.

Table 12 G and G Elite Series Library Specifications

Specification	G164	G238	G438	G638
Library Capacity (UDO60)	9.8TB	14.2TB	26.2TB	38.2TB
Library Capacity (UDO30)	4.9TB	7.1TB	13.1TB	19.1TB
Library Capacity (MO)	1.5TB	2.2TB	4.0TB	5.8TB
Number of Media Storage Slots	164	238	438	638
Number of Drives	2, 4, 6, 8, 10, or 12	2, 4, 6, 8, 10, or 12	2, 4, 6, 8, 10, or 12	2, 4, 6, 8, 10, or 12
Drive Types Supported	UDO / MO	UDO / MO	UDO / MO	UDO / MO
Library Reliability (MSBF) (1 swap = 1 SCSI exchange)	>3.8M	>3.8M	>3.8M	>3.8M
Robotics Avg. Exchange Time	6.1 sec.	6.2 sec.	6.3 sec.	6.4 sec.
Picker Type	dual	dual	dual	dual
Automated Mailslot	single	single	single	single
Magazine	ten slot	ten slot	ten slot	ten slot
Library Interface / Connector	Wide Ultra 2 LVD (auto-sensing), SPI-2 / HD68 FE connectors			
Options	Barcode reader, Redundant power supply, 1 or 2 additional buses			
Max Power	422 Watts (290 Watts with 6 UDO2 and redundant power)			
Dissipation	1402 BTU/hr (921 BTU/hr with 6 UDO2 and redundant power)			
Power Requirements Voltage/Current Frequency Operating Amps	100 - 240 VAC (universal) / 9.5A 50/60 Hz 2.3 Arns @ 120VAC, 6 UDO2 and redundant power			

Specification	G164	G238	G438	G638
Environmental				
Operating Temperature	+10 to +32°C (+50 to +90°F)			
Non-Operating Temperature	-30 to +60°C (-22 to 140°F)			
Gradient Temperature	10°C (50°F)			
Operating Humidity	10 to 80% RH non-condensing			
Non-Operating Humidity	10 to 95% RH non-condensing			
Space Requirements				
Width (in/cm)	56 / 142	56 / 142	56/142	56/142
Height (in/cm)	69 / 176	69 / 176	69 / 176	69 / 176
Depth (in/cm)	92 / 234	92 / 234	92 / 234	92 / 234
Minimum airflow: 3" behind unit and 2" on both sides				
Dimensions-Stand Alone				
Width (in/cm)	28 / 71	28 / 71	34 / 87	41/104
Height (in/cm)	69 / 176	69 / 176	69 / 176	69 / 176
Depth (in/cm)	35 / 89	35 / 89	35 / 89	35 / 89
Weight (lbs/kg)	468 / 213	468 / 213	548 / 249	628 / 286
Dimensions-Shipping			Expansion Bays	
Width (in/cm)	37 / 94	37 / 94	34/86	
Height (in/cm)	77 / 196	77 / 196	73/184	
Depth (in/cm)	48 / 122	48 / 122	34/86	
Weight (lbs/kg)	670 / 305	670 / 305	198 / 90	309 / 141

Appendix B
Safety Agency Standards

FCC Notice

This equipment is tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user is required to correct the interference at his own expense.

Shielded cables are required for this device to comply with FCC rules. Use shielded cables when connecting this device to others, with the exception of Power Cord Sets.

Industry Canada Notice

English: This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled “Digital Apparatus,” ICES-003 of the Industry Canada.

French: Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques", NMB-003 édictée par l’Industrie Canada.

European Notice

This product bears the CE Mark and is in conformance with the EMC directive, low voltage directive, the RoHS 2 directive and the following norms:

EN 55022/CISPR 22, Class A
EN 55024
EN 610000-3-2
EN 610000-3-3

Australia/New Zealand Notice

The AA638-A12 Series and G Series equipment, except for Elite models, has been tested and complies with AS/NZS 3548.

Japan Notice

AA638A12シリーズおよびGシリーズ装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると、電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

The AA638-A12 Series and G Series equipment is a Class A product based on the standard of the Voluntary Control for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

PRC Notice

The Gx libraries power supplies are certified for China Compulsory Product Certification (CCC).

Product Safety Standards

This library complies with the following domestic and international product safety standards:

- UL Standard 60950-1, 1st Edition: 2003 Safety of Information Technology Equipment
- CSA Standard C22.2 No. 60950-1-03, Safety of Information Technology Equipment
- IEC 60950-1, 1st Edition: 2001
- IEC 60825-1:1993+A1:1997+A2:2001+Amendment 1:2005-11-02

Laser Safety Notice

This library is a Class 1 Laser Product. Class 1 optical drives and an optional laser barcode reader are implemented within the library. The drives and the library both comply with 21 CFR 1010.10, 1040.11, and IEC 60825-1:1993+A1:1997+A2:2001 as Class 1 laser products.

The maximum radiation power output of the optional MS-3 bar code reader is 500µW, and of the optional VS-310 bar code reader is 1mW, with a scan rate of 60 scans/sec - high density and 100 scans/sec low density.

The maximum output power and wavelength of the laser in the Plasmon UDO30 and UDO60 drives is 65mW (403-413nm), in the Sony SMO-F551-W5 drive is 60mW (675-695 nm), and in the Sony SMO-F561 drive is 40mW (655-667 nm). The maximum radiated output power of LEDs within the library is 500uW

WARNING: Internal Laser

Use of controls or adjustments, or performance of procedures other than those specified herein, may result in hazardous radiation exposure.

This laser product label is placed on the front of the library, inside the front door.

CAUTION: Safety Interlock

The safety interlock on the back door of the library is designed to stop library operation when the door is opened. Defeating this interlock may result in hazardous radiation exposure.

CDRH Regulations

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. All Alliance Storage Technology, Inc products comply with 21 CFR 1020.10 and 1020.11 except for deviations pursuant to laser notice No 50 dated July 26, 2001.

Lithium Battery Safety

No user serviceable batteries are shipped with this equipment. The Main Control Board, the Front Control Panel, SMS motherboard and SMS RAID controller card contain a lithium battery which could explode if incorrectly replaced. Only the RAID battery is replaceable. Replace only with a qualified Alliance Storage Technology Inc. replacement battery through servicing provided by a trained technician. Return the old battery to Alliance Storage Technologies Inc. for disposal or dispose of in accordance with local regulations for the disposal of lithium batteries.

CAUTION: Battery

AN INCORRECT BATTERY TYPE OR INCORRECT REPLACEMENT PROCEDURE MAY CAUSE AN EXPLOSION. FOLLOW MANUFACTURER INSTRUCTIONS HEREIN.

"ATTENTION: IL Y A DANGER D'EXPLOSION S'IL Y A REPLACEMENT INCORRECT DE LA BATTERIE. REMPLACER UNIQUEMENT AVEC UNE BATTERIE DU MEME TYPE OU D'UN TYPE RECOMMANDE PAR LE CONSTRUCTEUR. METTRE AU REBUT LES BATTERIES USAGEES CONFORMEMENT AUX INSTRUCTIIONS DU FABRICANT."

Vorsicht! Explosionsgeahr bei unsachgemabem Austausch der batterie. Ersatz nur durch denselbel oder einen vom Hersteller empfolhenen gleichwertigen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

Disposal Instructions:

Hazardous Material Disposal Is Required

Due to internal restricted chemicals, lithium batteries cannot be discarded into public waste management facilities. Return the used motherboards, coin batteries and RAID card assemblies to Alliance Storage Technologies Inc. or dispose of spent assemblies at qualified waste recycling facilities who must extract and neutralize the lithium battery chemicals by law. The recycling service must remove coin batteries from the PCAs by relieving the battery holder clamp or by clipping the soldered legs. RAID battery packs must be clipped free of electrical wiring and separated from plastic wraps.

Power Source Safety

WARNING: Multiple Power Sources

Attention Service Personnel: This equipment is considered to be powered by multiple sources. Disconnect the SMS power by unplugging two power supply inlets at the left rear of the unit. Also disconnect the library power by unplugging the power cord from the power entry module at the lower front of the library. Also disconnect the power cord at the power strip inlet receptacle when present.

WARNING: High Leakage Current

Attention Service Personnel: AA638 A12 and Elite AA638 series equipment has high leakage current. Earthing connection to the chassis must be established before connecting power until after power is disconnected to prevent hazardous shock.

WARNING: Wiring

All electrical wiring of UPS, Power Cord Sets or service outlets must be performed by a licensed electrical technician. Safety ground connection to true earth reference must be verified. Observe the following Power Cord Set requirements.

WARNING: Loss of RAID Data

Loss of SMS RAID data may occur unless specific shut-down procedures are followed. All servicing must be performed by qualified Alliance trained technicians.

Earth Grounding

This appliance requires the power to be sourced from an earth grounded outlet, verified by a licensed electrician.

In Norway

Apparatet må tilkoples jordet stikkontakt.

In Sweden

Apparaten skall anslutas till jordat uttag.

In Finland

Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.

Power Cord Set

See the table below for required power cord sets. Outside the US contact Alliance for country specific requirements. All power cord modification must be done by a licensed electrician. Note that some cord sets in the table require Nema twist-lock or CEE17 industrial connectors where ground connection is made before line connections as needed for high leakage current systems.

Table 12. Power Cord Set Requirements

Power Cord Set Requirements									
		US and Canada				Continental Europe			
Cord	Series	Rating	Plug	Cordage	Connector	Rating	Plug	Cordage	Connector
Library to Power Source	G	125V 10A	NEMA5-15P	SJT 3/18AWG	IEC60320 C13	250V 10A	Schuko CEE 7/7	HO5VVF3G1.00	IEC60320 C13
NAS to Power Strip	AA-A12	125V 10A	IEC60320 C14	SJT 3/18AWG	IEC60320 C13	250V 10A	IEC60320 C14	HO5VVF3G1.00	IEC60320 C13
NAS to Power Strip	Elite AA	125V 10A	IEC60320 C14	SJT 3/18AWG	IEC60320 C13	250V 10A	IEC60320 C14	HO5VVF3G1.00	IEC60320 C13
Power Strip to Power Source	AA-A12	125V 15A	NEMA5-15P	SJT 3/14AWG	IEC60320 C13	250V 10A	IEC60309 CEE17	HO5VVF3G1.00	IEC60320 C13
Power Strip to Power Source	Elite AA	125V 10A	NEMA L5-15P	SJT 3/18AWG	IEC60320 C13	250V 10A	IEC60309 CEE17	HO5VVF3G1.00	IEC60320 C13
Power Strip to Power Source	Elite G	125V 10A	NEMA L5-15P	SJT 3/18AWG	IEC60320 C13	250V 10A	IEC60309 CEE17	HO5VVF3G1.00	IEC60320 C13

U.S. and Canada:

Alliance supplied power cord sets are CSA labeled: Type SJT, SVT, ST, SJO or SO, 3-conductors, No. 18AWG, rated 125V, 10A.

Germany and continental Europe

STROMANFNAHME: 100-240 VAC, 50/60 Hz, 10A
Für eine 230V-Anwendung, ist eine harmonisierte <HAR> konfektionierte Leitungsschnur, Typ H05vvf3G1.00, die für 250V/10A oder die Gleichwertigkeit geeognet ist, zu benutzen.

MOV Protection Fuses (all models)

Unlike the thermal breaker power switch, the library fuses are not in-line protection for the power supplies. Rather, the fuses are protection for MOV surge limiters. If the fuses are blown, the internal surge protection device must be replaced by qualified Alliance Storage Technologies Inc service personnel.

CAUTION: Surge Fuses

A HIPOT test is applied to the library during manufacture. To avoid stressing the MOV's, remove the two fuses next to the external AC connector on the lower back of the library before applying test voltage. The fuses take the MOVs and GDTs out of the circuit.

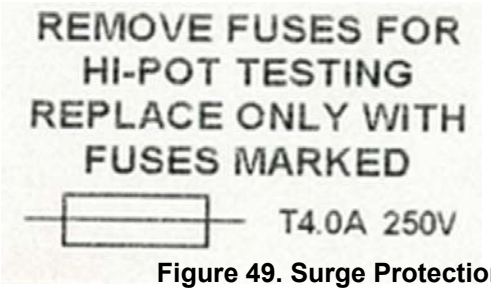


Figure 49. Surge Protection Module Fuses

Uninterruptable Power Source

A facility generator set distribution branch or a local UPS is required for superior robotics and data storage reliability. To properly size a local UPS, use the load requirement in the following table to avoid over-current crowbar due to turn-on surge and initial spin-up. APC UPS models are listed as recommended examples. Note that the load at turn-on is more than the sustained operating load. The sustained load determines the duration of supported service. Select auxiliary batteries as needed for desired support time. Alliance recommends 15 to 30 minutes of battery time.

Table 13. Local UPS Requirements

Local UPS Size Requirements			
SYSTEM TYPE	**UPS SIZE**	**SUSTAINED**	**APC TYPE**
AA164-638 and Elite AA164-638 models	875W min	650W	SMT1500
G164-638 and Elite G164-638 models	350W min	450W	SMT750

Appendix C
SCSI Bus Information

SCSI Bus Configuration

The following tables list the recommended SCSI bus configurations for the G-Series and Elite G-Series libraries. The figures following each table show diagrams of these bus configurations. Plasmon recommends no more than six drives on a single SCSI bus.

Table 14 Factory Default SCSI ID Settings

Physical Drive Numbers	SCSI IDs		
	Single Bus(1)	Dual Bus(2)	Triple Bus(3)
Robotics	6	6	6
1	0	0	0
2	1	1	1
3	2	0	0
4	3	1	1
5	4	2	0
6	5	3	1
7		2	2
8		3	3
9		4	2
10		5	3
11		4	2
12		5	3

(1) Library control is always on Bus 1 with SCSI ID 6.
(2) G-Series libraries for OS/400 support two buses only.
(3) Yellow shaded boxes are Bus 1, green shaded are Bus 2, and blue shaded are Bus 3.

Note: All SCSI Busses have a re-driver option at the external connection point, creating a new SCSI segment with auto-termination for full length external SCSI cabling.

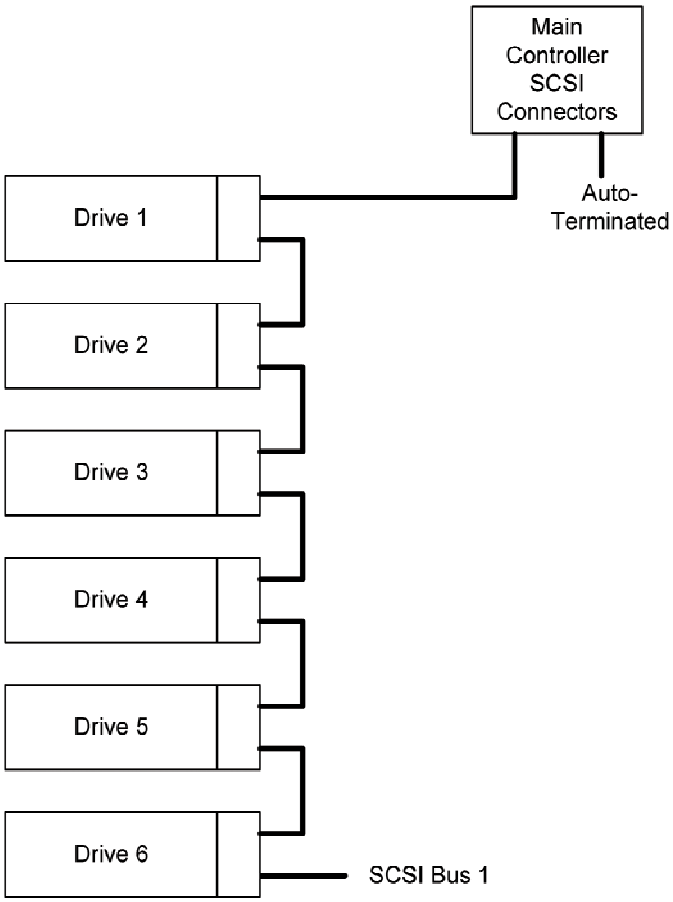


Figure 50. Single SCSI Bus Configuration

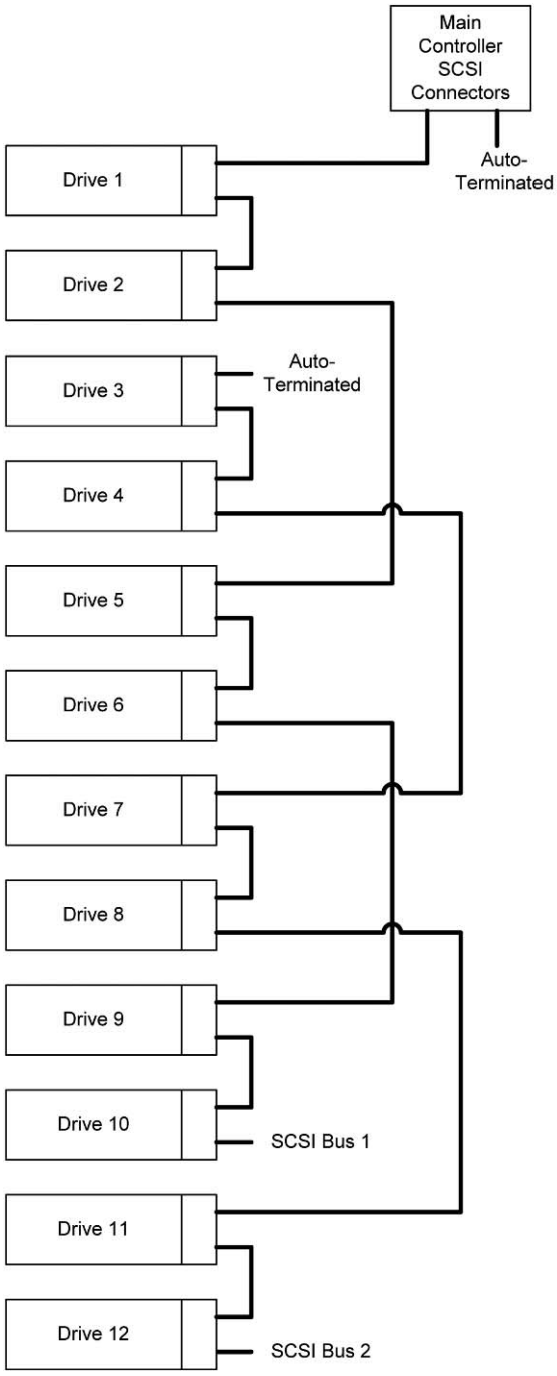


Figure 51. Dual SCSI Bus Configuration

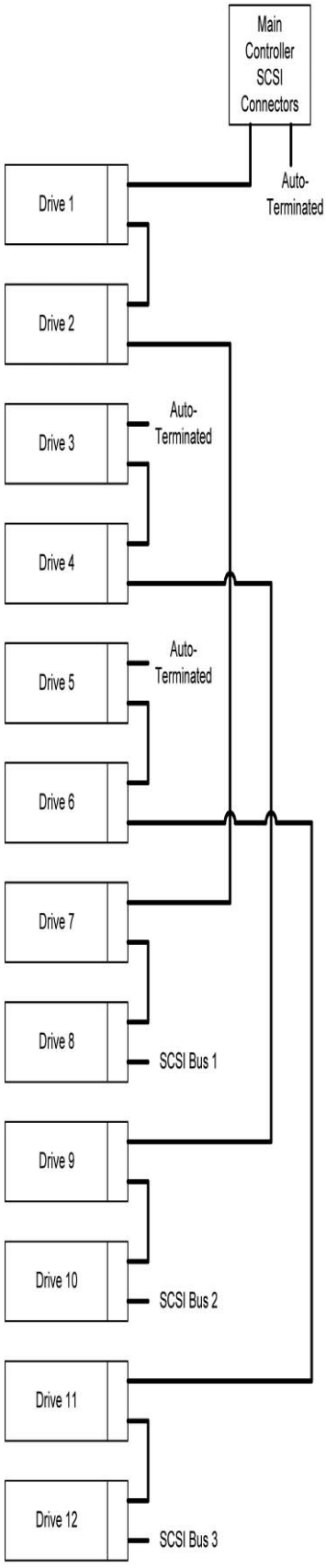


Figure 52. Triple SCSI Bus Configuration

External SCSI Cable Specifications

SCSI Cable Applications

Use only qualified SCSI cables supplied by Alliance for connections from a host computer to Plasmon stand-alone library installations, and between a Plasmon AA library and an optional extension library. All cabling must comply with the (SCSI Parallel Interface) SPI-3 or the Ultra-320 universal standard. The library connections are HD68, and host computers may be HD68 or VHDCI.

SCSI Cable Length

Plasmon libraries are limited to the maximum lengths shown in the following table.

Table 15. ***External SCSI Cable Lengths***

SCSI Interface	Max Allowable External Cable Length
LVD Point-to-Point To Host and to Extension Library (with UDO, MO, or mixed drives)	39 ft. (12m)
LVD Multi-dropped Bus (without SCSI Redriver CBs)	30 ft. (9.14 m)

SCSI Termination

The Plasmon G-Series libraries are auto-terminated internally. No external termination is required.

Appendix D
Error Codes

In the event of an error while on-line, the library retries the operation that failed. If this operation fails, the library attempts to return the media to their location before the operation started, and sends an error code to the host computer. This error code is displayed on the front panel of the library.

The following error codes are provided to assist in detecting the cause or finding a corrective action for a library error. Note the error code number displayed on the front panel, then find the corresponding error code from the following table.

Error	Sub Code	Error Description	Suspect Area	Corrective Action
00		Unknown error		No additional information
01		Flash checksum failure	Found during SCSI send diagnostics	Replace main board, or flash firmware download procedure may have to be performed
	1	Found during SCSI send diagnostics		
	2	Detected while unit was monitoring it's internal integrity		
02		NVRAM failure	Main controller circuit board	
0A		Firmware error: bad element code	Firmware	Download new firmware with the latest version
0C		Firmware error: operation stack overflow	Firmware	Download new firmware with the latest version
	1	Recording operation		
	2	Undoing operation		
0D		Firmware error: bad operation stack index	Firmware	Download new firmware with the latest version
0e		Main firmware download failure		Try to reprogram or replace main controller PWA

Error	Sub Code	Error Description	Suspect Area	Corrective Action
0f		DSP firmware down-load failure		Try to reprogram or replace main controller PWA
1A		Drive not installed	Drive interface cables	Replace drive module or drive interface PWA
	1	Trying to position to drive		
	2	Checking to move to or from a drive		
	3	Drive testing		
	4	During prepare for cycle testing		
1B		Source is empty	Host software error, NVRAM or error recovery failure	
	1	During check move (slot or drive is empty)		
	2	During check move (mailslot is empty)		
	3	First destination is empty (SCSI exchange com-mand)		
	4	Forced error from the error test com-mand (command sent using the serial port)		
1C		Destination is full	Host software error, NVRAM or error recovery failure	
	1	Picker stalled early in the store process		
	2	Trying to empty picker		
	3	During check move (slot or drive is empty)		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	4	During check move (mailslot is empty)		
	5	Second destination is full (SCSI exchange command)		
1D		Element unexpectedly empty	Picker motor offsets	
	1	Media did not block VP sensor during a pick		
	3	During prepare for cycle testing		
1E		Element unexpectedly full	Host software error, NVRAM or error recovery failure	
	2	Media in drive (trying to return a media to a drive)		
	3	During prepare for cycle testing		
1F		Picker is full	Operator error or media transport element	Check for mechanical damage if media is in transport element
	1	VP sensor blocked moving to the pick position		
	2	VP sensor blocked moving to the unload drive position		
	3	Both pickers are not empty to perform the move (during check move)		
	4	During check move		
	5	Exchange media (SCSI command)		
20		Pick media failure	Media transport element picker fingers, picker motor, offsets	Run pivot and picker offsets

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	1	Picker fingers disengaged from media after starting to pick media		
	2	Pick media retry aborted		
21		Store media failure	Picker motor, vertical offset adjustment, or media storage element	
	1	Media did not block VP sensor during a store		
	2	Picker stalled during a store media process	Offsets, picker motor, forward position sensor	
	3	Picker fingers did not release from the media, or the picker stalled during a media store operation		
23		Drive not ready	Drive cable, Drive or media	Check connections, replace cable or media
24		Drive load failure	Bad media drive or media transport element	Check media transport element for mech failure, replace drive
	1	Media not seen in picker		
	2	Pick fingers did not release from media		
	3	Drive did not pull in the media		
	4	Drive load retry aborted		
25		Drive unload failure	Offsets, picker fingers	
	1	Media disengaged from picker		
	2	Pick fingers did not grab media		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	3	Unload drive retry aborted		
	4	Unload drive retry (before the completion status was even set to started)		
26		Eject failure	Bad media, drive or drive interface PWA	
	1	Eject time out failure		
	2	Changer ejects are not allowed (during retry)		
	3	Waiting for drive eject status		
28		Attempt to load MO media in UDO drive	Wrong media for drive	
29		Attempt to load UDO media in MO drive.	Wrong media for drive	
2b		Cannot export media	Mailslot sensor or host software	
	1	Checking for an empty mailslot		
	2	Could not return a media to it's original slot, tried to export media		
	3	Trying to return the media to the mailslot		
2c		Mailslot is open	Mailslot open sensor, operator error	Close mailslot if open
	1	During check move (importing)		
	2	During check move (exporting)		
	3	Checking bar code		
	4	Trying to process the prevent/allow removal command		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	5	During SCSI move media command		
	6	During SCSI exchange command		
	7	Positioning to mailslot		
2d		Media removal prevented	Host software	
	1	Open/close mailslot (SCSI command)		
	2	Move media (SCSI command)		
	3	Exchange media (SCSI command)		
2f		Pivot failure	Pivot motor, pivot cable, pivot sensors	Check connections and sensors, replace motor
	1	Pivot is losing position accuracy		Re-run auto calibration
	2	Completion status from DSP		
32		Lift position Failure	Lift motor	
	1	Destination lift position is invalid	Firmware	Download new firmware with the latest version
	2	During lift position lift time-out		
	3	Position retry aborted		
33		Lift blocked	Vertical path sensor or media protruding	Check for media protruding from storage slot, replace sensor
	1	Picker not in the blocked column		
	2	Picker not in front of the blocking element, but it is in the blocked column		
	3	Media is blocking VP sensor after storing media		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	4	Media is blocking VP sensor after picking from a drive (during initialize)		
	5	Initialize was not able to unblock the VP sensors		
	6	VP blocked during lift positioning (if column is identified as 0, the blockage was momentary		
	7	VP blocked trying to return a media to its last known location		
	8	Lift is not in the blocking column (during initialize)		
35		Flip failure	Flip motor or gear	Check gear on flip motor shaft, replace flip motor
	1	Flip is losing position accuracy		Re-run auto calibration
	2	During position lift		
	3	Flip stalled (neither flip sensor is blocked)		
	4	Completion status from DSP		
	5	wrong side of flipper is up		
37		Flip Align Fail		
	1	Flip align fail	Too much gear backlash or loose flip gear	
3B		Picker position failure	Picker motor, fingers jammed or offsets	Check for mechanical failure, replace media transport element
	1	Completion status from DSP		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	2	Lift is not homed when trying to position the picker		
	3	Bad picker position code		
	4	Picker home sensor is not blocked		
	5	Picker home sensor is blocked unexpectedly		
	6	Picker stalled while retracting		
	7	Picker stalled while moving out to pick a media. This problem is detected when the picker returns to the home position		
	8	Picker tripped the home sensor unexpectedly moving to the forward position after storing a media. (storage slot is unexpectedly full)		
3C		Swap picker failure	Selector nut or pawl spring	Check for mechanical failure, replace media transport element
	1	Could not change the active picker		
3F		Slider misposition	Slider motor or fingers jammed	Check for mechanical failure, replace media transport element
	1	Picker fingers are in a danger zone for moving the lift		
	2	Picker is not blocking the picker forward position sensor when trying to move the lift		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
40		Flip align fail		
	1	Flip align fail	Too much gear backlash or loose flip gear	
43		Mailslot open failure	mailslot motor or sensors	
	1	The "IN" (retracted) position sensor is still blocked. The motor did not move		
	2	The motor stalled during movement		
44		Picker not at drive	Operator error	
	1	Attempting to load a drive		
	2	Attempting to unload a drive		
45		Element scan failure	Lift cable or lift motor	Check connections, replace cable, or lift
	1	Failed to move the lift motor		
	2	Invalid element (media present check)	Firmware	Download the new firm-ware with the latest version
46		MO media, but no MO drive		
47		UDO media, but no UDO drive		
49		Bar code reader is not installed		
4a		Rear door open	Rear door sensor or cable	Check sensor and cable
	1	Doing background process checking		
	2	Checking if library is ready for motor movement		
	3	Trying to initialize library		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
4b		Bar code read failure	Bar code reader or labels	Check that labels from media have not come off
	1	Attempting to read the bar code of an invalid element	Firmware	
	2	Trouble reading bar code	Bar code labels	
4e		Drive not responding	Drive interface PWA	Replace drive interface PWA
	6	Waiting on drive spin down signal to be asserted		
	7	Waiting on drive eject signal to be asserted		
52		Mailslot close fail	Mailslot in/out sensors or motor	
	1	The "OUT" (extended) position sensor is still blocked. The motor did not move		
	2	The motor stalled during movement		
54		Invalid drive type	Drive module or drive interface PWA	Check module connections, replace drive interface PWA
55		Drive SCSI address conflict	Host software or configuration settings	Insure all SCSI IDs are unique
	1	Address conflict with changer		
	2	Address conflict with another drive		
58		Mailslot jammed	Mailslot Assembly: Sensors, Rails, Mailslot Motor, Belt Tension, Cables	Verify that motor is driving leadscrew correctly; Verify the Carriage is not binding on Rails; Repair or replace mailslot
	1	At closed position		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	2	At open position		
	3	During open operation		
59		Power supply fail	Indicated power supply	Replace indicated power supply
	1	Power supply is removed		
	2	Power supply fan has failed		
	3	Power supply power failure		
5a		Cable connect failure		Check cable connections
	1	CJ3 to front panel	Main controller PWA	
	2	CJ4 to pivot, lift, MTE	Main controller PWA	
	3	CJ5 to VP decoder PWA	Main controller PWA	
	4	CJ6 configuration plug	Main controller PWA	
	5	CJ7 interlocks, reference sensor	Main controller PWA	
	6	CJ10 to power distribution PWA	Main controller PWA	
	7	CJ12 to external SCSI interface	Main controller PWA	
	1	CJ7 to SCSI isolator PWA	2 to 16 drive controller PWA	
	2	CJ6 board address plug	2 to 16 drive controller PWA	
	1	CJ1 SCSI to external SCSI interface	17 to 31 (SCSI isolator)	
	1	CJ4 mailslot sensors	32 to 35 (mailslot/ magazine)	
	2	CJ6 board address plug and power	32 to 35 (mailslot/ magazine)	

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	3	CJ8 magazine sensors and solenoid	32 to 35 (mailslot/ magazine)	
	1	CJ4 pass through sensors	36 to 39 (pass through)	
	2	CJ6 board address plug	36 to 39 (pass through)	
	1	CJ3 or CJ4 SCSI configure or connection	40 (MC SCSI adapter)	
	1	CJ2 VP detectors	41 ((VP decoder)	
5b		Fuse overload		Turn unit off for ten seconds to reset fuses
	1	F1 fuse +24V interface CJ3 to CAN bus	Main controller PWA	
	2	F2 fuse +5V interface CJ3 to CAN bus	Main controller PWA	
	3	F3 fuse +25V interface CJ4 to pivot, lift & MTE	Main controller PWA	
	4	F4 fuse +5V interface CJ4 to pivot, lift & MTE	Main controller PWA	
	5	F5 fuse +5V interface CJ5 to VP decoder	Main controller PWA	
	6	F6 fuse +5V interface CJ8 to MC SCSI	Main controller PWA	
	7	F7 fuse +12V interface CJ8 to MC SCSI	Main controller PWA	
	8	F9 fuse +5V interface CJ12 to external SCSI	Main controller PWA	
	9	F10 fuse +24V for lift motor. Interface CJ4 to pivot and lift	Main controller PWA	

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	10	F11 fuse for stepper motors. Interface CJ4 to pivot, lift & MTE	Main controller PWA	
	1	F1 fuse +12V interface CJ4 to drive module fan	2 to 16 drive controller	
	2	F3 fuse +24V for drive power control switches	2 to 16 drive controller	
	1	F1 fuse +5V terminator power to drive module CJ2	17 to 31 SCSI isolator	
	2	F2 fuse +5V terminator power for LVD SCSI CJ1	17 to 31 SCSI isolator	
	1	F2 fuse +24V for mailslot stepper motor CJ7	32 to 35 mailslot magazine	
	2	F3 fuse +24V for magazine solenoid CJ8	32 to 35 mailslot magazine	
	1	F2 fuse +24V for pass through stepper motor CJ7	36 to 39 pass through	
	1	F1 fuse +5V terminator power for LVD SCSI CJ2	40 MC SCSI adapter	
	1	F1 fuse +5V interface CJ7 for power to mailslot PWA	42 power distribution	
	2	F2 fuse +5V interface CJ7 for power to RMI board	42 power distribution	
	3	F3 fuse +24V interface CJ7 for power to mailslot PWA	42 power distribution	
	4	F4 fuse +24V interface CJ7 for cabinet cooling fans	42 power distribution	
5c		Circuit board fail		Replace PWA

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	1	FLASH checksum	Main controller PWA	
	2	NVRAM failure	Main controller PWA	
	3	Main CPU internal failure	Main controller PWA	
	4	DSP internal failure	Main controller PWA	
	5	DSP to main CPU communication failure	Main controller PWA	
	6	Lift current monitor	Main controller PWA	
	7	Thermal sensor failure	Main controller PWA	
	8	Crystal failure	Main controller PWA	
	1	CPU internal failure	2 to 16 drive controller	
	2	I/O loopback test failure	2 to 16 drive controller	
	3	Unexpected reset (watchdog)	2 to 16 drive controller	
	4	Communication failure, board stops responding to poll	2 to 16 drive controller	
	1	CPU internal failure	32 to 35 mailslot magazine	
	2	I/O loop back test failure	32 to 35 mailslot magazine	
	3	Unexpected reset (watchdog)	32 to 35 mailslot magazine	
	4	Communication failure, board stops responding to poll	32 to 35 mailslot magazine	
	5	Thermal sensor / EEPROM failure	32 to 35 mailslot magazine	
	1	CPU internal failure	36 to 39 pass through	
	2	I/O loop back test failure	36 to 39 pass through	

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	3	Unexpected reset (watchdog)	36 to 39 pass through	
	4	Communication failure, board stops responding to poll	36 to 39 pass through	
	1	SCSI chip failure	40 MC SCSI adapter	
	2	I/O loop back test failure	40 MC SCSI adapter	
	3	FIFO failure	40 MC SCSI adapter	
	1	Decoder control failure	41 ((VP decoder)	
	1	Supply monitor failure	42 power distribution	
	1	CPU internal failure	58 front panel interface	
	2	NVRAM failure	58 front panel interface	
	3	Unexpected reset (watchdog)	58 front panel interface	
	4	Communication failure board stops responding	58 front panel interface	
	5	Real-time clock failure	58 front panel interface	
	6	LCD failure	58 front panel interface	
	1	Failed margin test	59 - 76 VP emitter/ detector	
	2	Emitter or detector failure	59 - 76 VP emitter/ detector	
	3	Blocked response time	59 - 76 VP emitter/ detector	
	4	Unblocked response time	59 - 76 VP emitter/ detector	
5d		Drive overheat warning	Drive	

Error	Sub Code	Error Description	Suspect Area	Corrective Action
5e		Drive shutdown due to overheat	Drive	
5f		Drive shutdown due to low fan speed	Drive module fan	
63		Drive module low fan speed	Drive module fan	
64		Out-of-range power supply voltages		
	1	5V power supply		
	2	12V power supply		
	3	24V power supply		
65		Main Controller SCSI term power	Internal SCSI cable or attached circuit board	
66		Mailslot position failure	Mailslot interface PWA	
67		Pass-through position failure	Pass-through interface PWA or pass-through motor	
	1	Completion status from DSP		
	2	Motor did not move sending pass through		
	3	Motor stalled while moving sending pass through		
	4	Motor did not move recalling pass through		
	5	Motor stalled while moving recalling pass through		
68		Position time-out mailslot	Mailslot interface PWA	
69		Position time-out, pass through	Pass-through interface PWA	
70		Comm time-out DSP	Main control PWA	

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	1	Commanding DSP		
	2	Waiting for the lift to complete		
	3	Waiting for the picker to complete		
	4	Waiting for the pivot to complete		
	5	Waiting for the flip to complete		
	6	Reading flip sensor status		
	7	Waiting for multiple motor axis to complete their movements		
71		CAN time-out drive	1 to 12 drive interface PWA	Replace drive interface PWA
	1	Checking drive interface board (self test)		
	2	Getting drive status		
	3	Powering drive off		
	4	Powering drive on		
	5	Changing drive ID		
	6	Setting drive options		
	7	Sending maintenance command to a drive		
	8	Sending set configuration to a drive		
	9	Sending parameter bytes to a drive		
	10	Powering off module		
	11	Powering on module		
	12	Resetting drive interface board		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	13	Enabling/disabling SCSI isolation board		
	14	Blinking drive LEDs		
	15	Turning on/off drive LEDs		
	16	Waiting for drive ready		
	17	Starting drive spin down		
	18	Ejecting media from a drive		
	19	Reading fan tachometer		
	20	Getting drive module temperature		
72		CAN time-out mailslot	Mailslot PWA	Replace mailslot PWA
	1	Reading sensors		
	2	Positioning motor		
	3	Stepping motor in motor test		
	4	Trying to reduce holding torque on motor		
	5	Reading stepper motor count		
	6	Zeroing stepper motor count		
73		CAN time-out magazine	Mailslot/magazine PWA	Replace mailslot/magazine PWA
	1	Checking for mailslot board		
	2	Reading sensors		
	3	Turning on access LED		
	4	Turning off access LED		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	5	Releasing magazine latch		
	6	Reading cabinet temperature		
74		CAN time-out passthru	Pass-through PWA	Replace the pass-through PWA
	1	Reading sensors		
	2	Positioning pass through mechanism		
	3	Stepping motor in motor test		
	4	Trying to reduce holding torque on motor		
	5	Reading stepper motor count		
	6	Zeroing stepper motor count		
	7	Checking for pass through board		
75		SCSI bus not isolated for service	SCSI communication lockup, SCSI isolator PWA or drive interface PWA	SCSI bus may be frozen in a busy state
78		Mailslot not installed		Check cable connections to mailslot PWA. Replace mailslot PWA
80		Magazine not installed	Mailslot/magazine PWA or magazine in place sensors	
	1	Trying to position to magazine		
	2	No magazine interface board found		
	3	During checking move		
	4	Checking element status		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	5	Checking bar code		
81		Magazine not latched	Magazine latch sensor or solenoid	
	1	Trying to position to magazine		
	2	During checking move		
82		Magazine release prevented	Operator or host software	
84		Magazine release fail	Solenoid or latch sensor	
90		Flip offset failure	MTE	Replace MTE
	1	Horizontal flip position could not be found		
	2	Flip steps changing MTE position by too much		
	3	Flip offset too many counts less than nominal		
	4	Flip offset too many counts greater than nominal		
	5	Flip offset less than negative physical boundary count		
	6	Flip offset greater than positive physical boundary count		
91		Pick offset failure	Hard Stop in Chassis, Picker in MTE, Picker Home Sensor in MTE, MTE	Verify Hard Stop in Chassis is Installed; Verify Picker Home Sensors are working correctly; Verify Picker is not binding in MTE; Repair or replace MTE
	1	Pick offset too many counts less than nominal		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	2	Pick offset too many counts greater than nominal		
92		Lift offset failure	Lift Home Flag in Chassis, Lift Home Sensor on Lift Interface PWA, Cables, MTE	Verify Lift Home Flag is not damaged; Verify Lift Home Sensor is not damaged; Verify Lift Home Sensor working correctly; Verify that there is no interference that could block any of the other optical interrupters on the Lift Interface PWA; Replace MTE
	1	Lift offset too many counts less than nominal		
	2	Lift offset too many counts greater than nominal		
	3	Lift offset less than negative physical boundary count		
	4	Lift offset greater than positive physical boundary count		
93		Pivot Offset failure	Pivot Home Flag in Chassis, Pivot Home Sensor, Pivot PWA, Cables, MTE	Verify Pivot Home Flag is not damaged; Verify that Pivot Home Sensor is not damaged; Verify that Pivot Home Sensor is working correctly; Replace MTE
	1	Pivot offset too many counts less than nominal		
	2	Pivot offset too many counts greater than nominal		
	3	Pivot offset less than negative physical boundary count		
	4	Pivot offset greater than positive physical boundary count		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
94		Offset target fail	Auto Offset Target, Auto Offset Sensor within MTE, cables, MTE	Verify Auto Offset Target is not damaged and has background installed if applicable; Verify Auto Offset Sensor is operating correctly; Repair or replace MTE
	1	Target could not be found		
	2	Target horizontal position found crudely, but not with fine resolution		
	3	Target vertical position found crudely, but not with fine resolution		
	4	Reference target not found		
95		Offset reference fail	Reference Detector(s) in chassis, cables, MTE	Verify Reference Detectors are working correctly; Replace MTE
	1	Reference could not be found		
	2	Reference vertical position found crudely, but not with fine resolution		
	3	Reference horizontal position found crudely, but not with fine resolution		
96		Mailslot jammed	Mailslot Assembly: Sensors, Rails, Mailslot Motor, Belt Tension, Cables	Verify that motor is driving leadscrew correctly; Verify the Carriage is not binding on Rails; Repair or replace mailslot
	1	Open sensor not covered enough for reliable operation		

Error	Sub Code	Error Description	Suspect Area	Corrective Action
	2	Mailslot has over traveled in the open position		
C1	01	Drive eject failure, general	Bad media, drive, or drive interface CB	
C2	02	Drive eject failure, WaitDriveEjected failed	Bad media, drive, or drive interface CB	
F7		SCSI parity error	SCSI cable	Check for conflicting SCSI ID's
F9		Abort message received	SCSI cable	Check for conflicting SCSI ID's
FD		Host communica-tion time-out	SCSI cable	Check for conflicting SCSI ID's

Appendix E
Packaging Instructions

Packing Instructions (All Models)

This section is provided in case it is necessary to ship the library (without the expansion bays) back to Alliance Storage Technologies, Inc. For instructions on how to pack the expansion bays, contact Alliance Storage Technologies, Inc. These procedures must be followed.

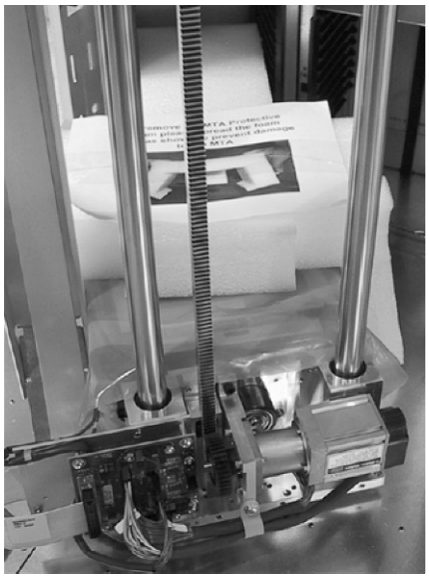
CAUTION

Plasmon libraries must be shipped in the original packaging. Shipping a unit in anything other than the manufacturers packaging voids the warranty.

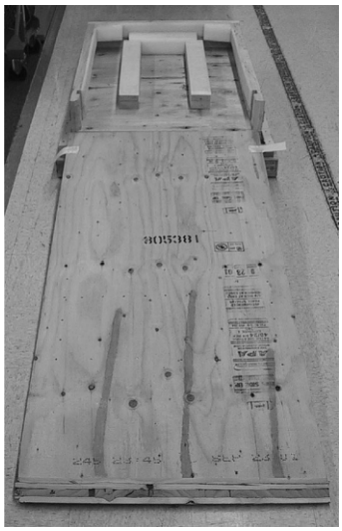
The library must be parked before packing the system. Remove all media before shipping the library. The storage element detents are not strong enough to hold the media during shipment.

Follow these steps to pack the library for shipping:

1. Move media transport (MTA) to bottom center of library.
2. Cover MTE with anti-static bag.
3. Clamp foam support over MTE. Make sure foam tabs on support are securely underneath MTE.



4. Place skid ramp on ground in front of packaging skid. Connect Velcro on ramp to Velcro on packaging skid.



5. Using two people, roll library onto packaging skid. Library's front door goes onto skid first. Push on bottom of library when rolling onto packaging skid.
6. Cover library with anti-static bag, and insert back edge-board of skid into slots with foam protected side toward library.

7. Remove ramp from skid and place upright in slot provided behind library. Close Velcro fasteners.

8. Place top foam over library, and fit in place.

9. Place cardboard sleeve over library, and place lid on top.

10. Finally, strap box to skid for shipping.

Packing Instructions (Expansion Bays)

This section is provided in case it is necessary to ship the bays to another location, or back to Plasmon. These procedures must be followed.

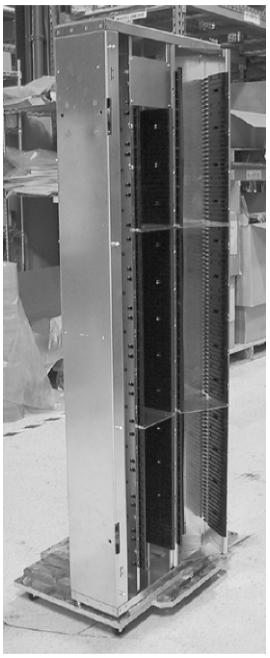
CAUTION

Plasmon libraries and bays must be shipped in the original packaging. Shipping a unit in anything other than the manufacturers packaging voids the warranty.

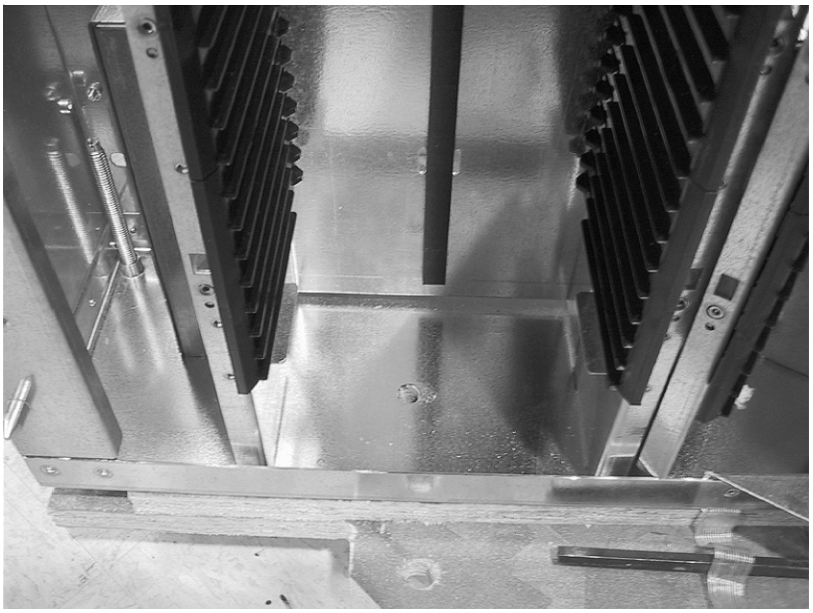
Follow these steps to pack the bays for shipping:

1. Lay out the pallet and ramp, wheeled skid, and mounting blocks as shown in the picture below. Ensure the ramp is securely attached to the pallet with the Velcro strips.

2. Place the first bay on the wheeled skid as shown in the picture below.

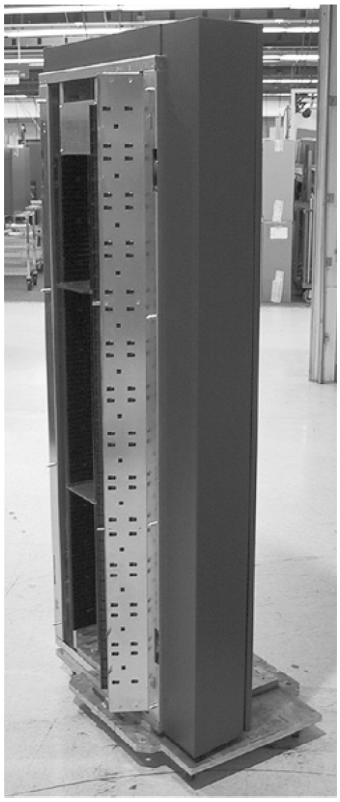


3. Position the bay so the mounting bolt hold lines up as shown below.



1. Use mounting block and a hex head bolt to secure the bay to the wheeled skid.

2. Hang the painted skin and spacer column on their mounting screws as shown.



3. Secure a second bay in the same way, but facing the opposite direction.

4. With two people steadying the bays, roll the wheeled skid up the ramp onto the pallet. Push at the bottom to avoid tipping.

5. Secure the wheeled skid to the pallet with four hex head bolts (two on each side).

6. Cover each bay with an anti-static bag, and tape the ramp in an upright position as shown.

7. Place the shaped foam topper on the bays. Make certain the center spacer foam fits down between the bays. Then slid the cardboard box over the bays and tape the top flaps closed.

8. Finally, strap box to skid for shipping.

Packing Instructions (AA164 - AA638 SMS Unit)

This section is provided in case it is necessary to ship the SMS Archive Appliance to another location, or back to Alliance Storage Technologies Inc. These procedures must be followed.

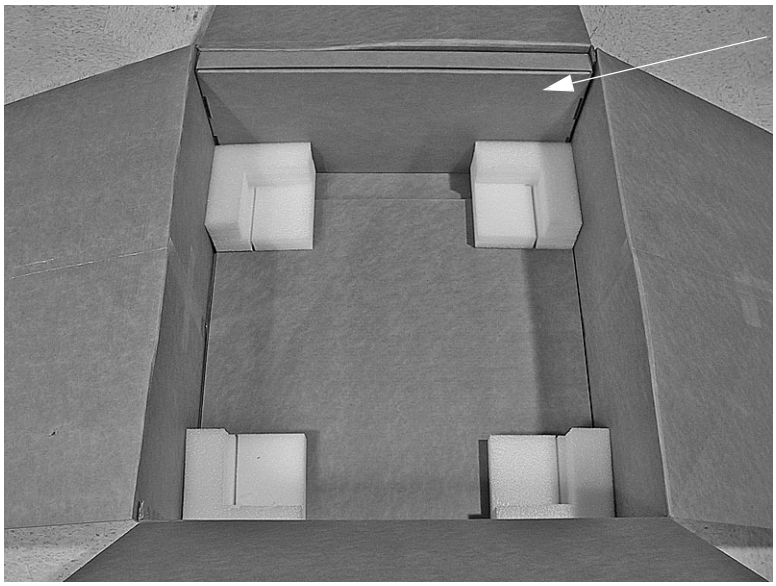
CAUTION

Plasmon libraries, bays, and Archive Appliances must be shipped in the original packaging. Shipping a unit in anything other than the manufacturers packaging voids the warranty.

The SMS mounting rack and the SMS unit are each packaged and shipped in individual boxes as described below. Refer to the SMS mounting instructions in this chapter to understand how to remove the SMS unit from the rack, and the rack from the library.

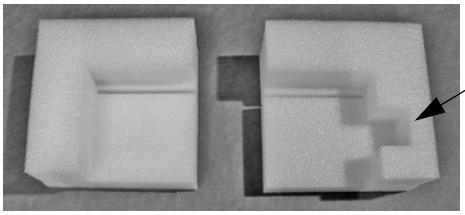
Packing the SMS Mounting Rack

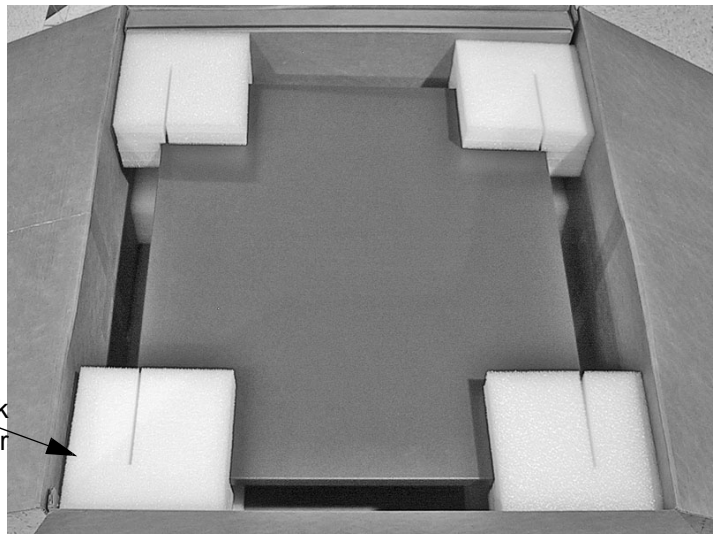
1. Lay the mounting rack box out with the accessories box and corner blocks in place as shown below. Line up the slots in the corner blocks front to back.



2. Place the mounting rack into the box with the front of the rack facing the accessories box, and the bottom rails fitted in the slots of the corner blocks.

3. Identify the corner block that has a cutout for the power strip, and place corner blocks on top of the mounting rack.





4. Close and tape the box for shipping.

Packing the SMS Unit

This section is provided in case it is necessary to ship the SMS unit to another location, or back to Plasmon. These procedures must be followed.

CAUTION

Plasmon libraries, bays, and SMS units must be shipped in the original packaging. Shipping a unit in anything other than the manufacturers packaging voids the warranty.

1. Lay the SMS and HDD drive double box out with the foam insert in place as shown below.
   Line up the slots in the foam blocks front to back.

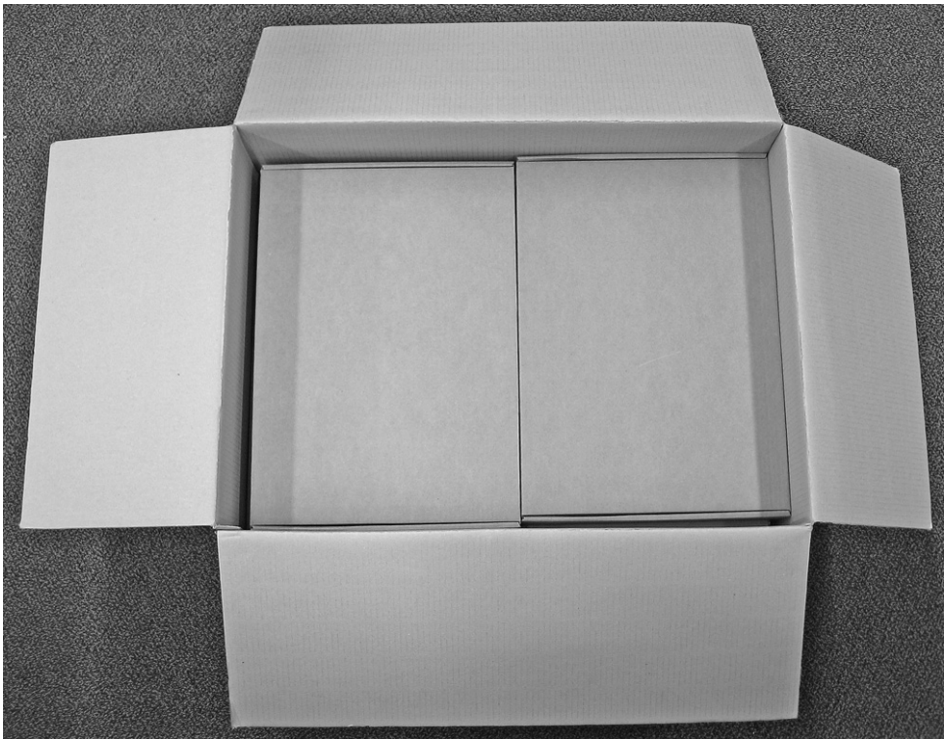
2. Remove all HDD drives and blank shuttles from the SMS, and place the SMS unit into the double box so the front tabs fit into the foam as shown below.

3. Place the covering foam piece on top of the SMS unit as shown below, and close the inner box.

4. In many cases the HDD drives do not leave the customer site. In this case pack the drive boxes empty (or provide other packing material) to fill the space. If the drives are being packed for moving or return, pack the HDD drives with shuttles into the drive boxes as shown below. Each drive and shuttle should be in an anti-static bag.

5. Place the top foam piece in place as shown below and close the drive box.

6. Place the two HDD drive boxes on top of the SMS box.



7. Two more boxes hold the blank shuttles and accessories. Place these on top of the drive boxes as shown below, and seal the double box for shipping.

Appendix F
Storage Columns and Slots

Inside the rear door of all library models is a diagram of the slot numbering scheme. Also, refer to the slot location diagram on the following page for slot numbering.

164 Slot Configuration:

Viewing the system through the rear access door, the columns are viewed from left to right starting with column 3 (far left), and the storage slots are numbered in a zig-zag pattern from the top down, with slot 1 starting at column 3 and moving from left to right. For example, slot 2 column 4, slot 3 column 5, slot 4 column 3, etc. Drives are numbered from the top down with each module containing two drives and drive 1 on the top. The ten slot magazine is numbered from the top down with slot one on the top.

238 Slot Configuration:

Viewing the system through the rear access door, the columns are viewed from left to right starting with column 3 (far left), and the storage slots are numbered in a zig-zag pattern from the top down, with slot 1 starting at column 3 and moving from left to right. For example, slot 2 column 4, slot 3 column 5, slot 4 column 3, etc. Drives are numbered from the top down with each module containing two drives and drive 1 on the top. The ten slot magazine is numbered from the top down with slot one on the top.

438 Slot Configuration: (left expansion bay only)

Viewing the system through the rear access door, the columns are viewed from left to right starting with column 1 (far left) and the storage slots are numbered in the following pattern for the 238 slot configuration for column 3, 4, and 5 and from the top down for column 1 and 2.

638 Slot Configuration: (left and right expansion bays)

Viewing the system through the rear access door, the columns are viewed from left to right starting with column 1 (far left) and the storage slots are numbered following the pattern for the 238 slot configuration for column 3, 4, and 5 and from the top down for column 1 and 2 and also from the top down for column 6 and 7.

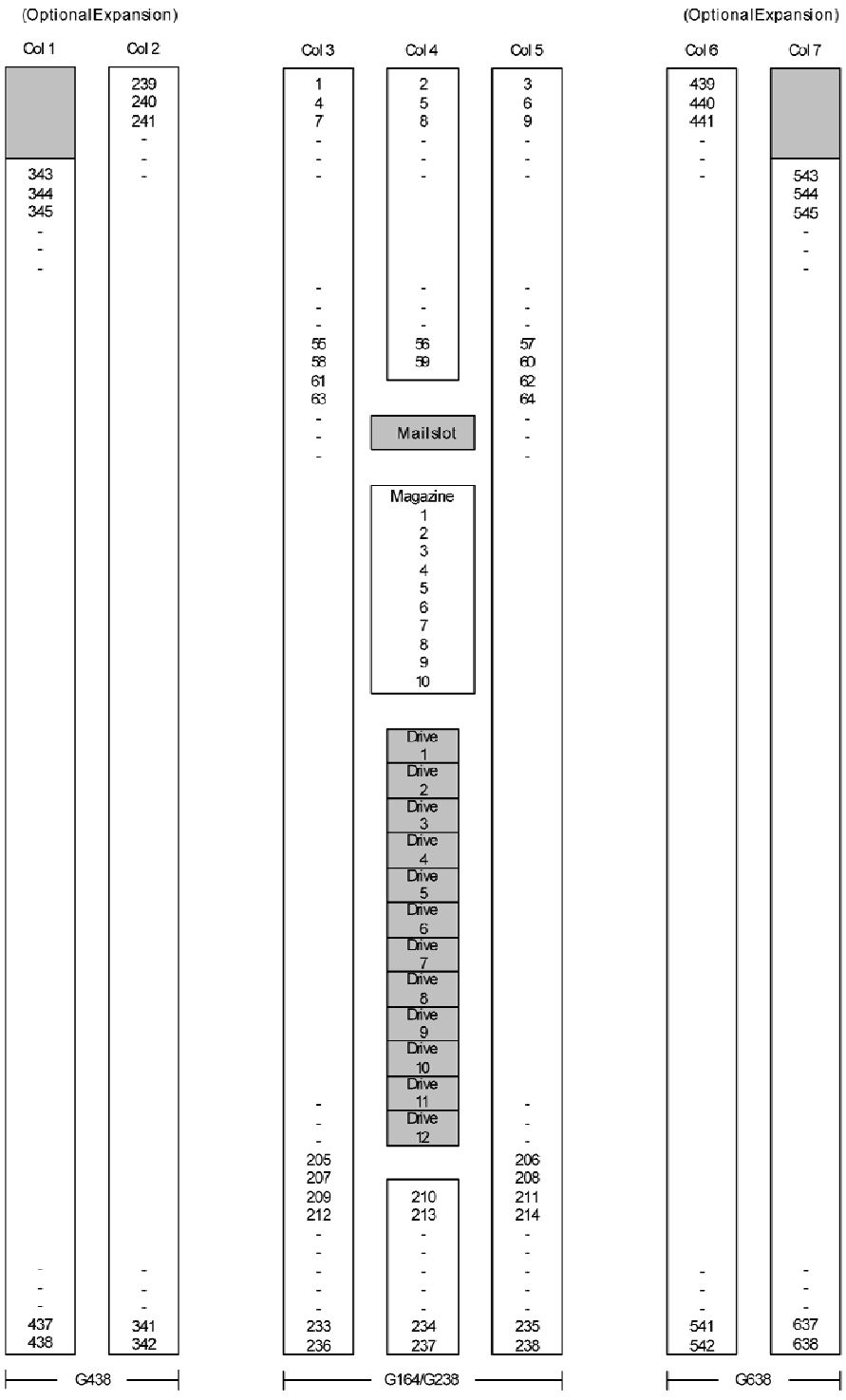


Figure 53. G164 – 638 Slot Map

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CONTACTING ALLIANCE STORAGE TECHNOLOGIES, INC.

World Wide Technical Support	
Alliance Technical Support	1-877-585-6793 (United States Calls) 01-719-593-4437 (International Calls)
	1-719-593-4164 (fax)
e-mail	tech.support@astiusa.com
Internet	www.astiusa.com

Firmware Updates

Contact Plasmon or your reseller for the latest firmware updates.

Before Placing a Service Call to Alliance Storage Technologies Inc

Register your site on-line at http://www.plasmontech.com/warranty/index.html.

Placing a Service Call

Contact your service provider directly. If Alliance Storage Technologies Inc. is your service provider, please have the following information available when calling:

- Serial number
- Description of failure
- System information
    (1) Computer type and SCSI adapter
    (2) Software configuration
    (3) Software and version number


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