RS-1600-FC-FFX2 Quick Installation Guide

Safety

All plug-in modules and blank plates are part of the fire enclosure and must only be removed when a replacement can be immediately added. The system must not be run without all units in place.

Permanently unplug the unit if you think that it has become damaged in any way and before you move it.

- Do not lift the enclosure chassis by the extended LRC module.
- An RS-1600-FC-FFX2 enclosure can weigh up to 37kg (81lb). Do not try to lift it by yourself.
- The RS-1600-FC-FFX2 unit must only be operated from a power supply input voltage range of 100-120 VAC or 200-240 VAC.
- The plug on the power supply cord is used as the main disconnect device. Ensure that the socket outlets are located near the equipment and are easily accessible.
- If powered by multiple AC sources, disconnect all supply power for complete isolation
- In order to comply with applicable safety, emission and thermal requirements no covers should be removed and all bays must be fitted with plug-in modules.
- The power connection must always be disconnected prior to removal of the Power Supply/Cooling module from the enclosure.
- A safe electrical earth connection must be provided to the power cord. Check the grounding of the enclosure before applying power.
- Provide a suitable power source with electrical overload protection to meet the requirements laid down in the technical specification.
- A faulty Power Supply/Cooling module must be replaced with a fully operational module within 24 hours.

Caution: If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Rack System Precautions

The following safety requirements must be considered when the unit is mounted in a rack.

- The rack design should incorporate stabilizing features suitable to prevent the rack from tipping during installation.
- When loading a rack with the units, fill the rack from the bottom up and empty from the top down.
- The rack design should incorporate stabilizing features suitable to prevent the rack from tipping or being pushed over in normal use.
- The rack should comply with the airflow requirements detailed in the technical specification.
- The rack design should take into consideration the maximum operating ambient temperature for the unit, which is 40°C.
- The rack should have a safe electrical distribution system. It must provide overcurrent protection for the unit and must not be overloaded by the total number of units installed in the rack. Consideration of the unit's nameplate rating should be used when addressing these concerns.
- The electrical distribution system must provide a reliable earth for each unit and the rack.
- Each power supply in each unit has an earth leakage current of 1.8mA. The design of the electrical distribution system must take into consideration the total earth leakage current from all the power supplies in all the units. The rack will require labelling with "HIGH LEAKAGE CURRENT. Earth connection essential before connecting supply".
- The rack when configured with the units must meet the safety requirements of UL 60950 and IEC 60950.

Dual PSU Operation

This equipment is intended to operate with two working PSUs.

Do not lift the RS-1600-FC-FFX2 by the handles on the PSU/Cooling module, they are not designed to support the weight of the populated enclosure.

ESD Precautions

It is recommended that you fit and check a suitable anti-static wrist or ankle strap and observe all conventional ESD precautions when handling RS-1600-FC-FFX2 plug-in modules and components. Avoid contact with backplane components and module connectors, etc.

Battery Safety

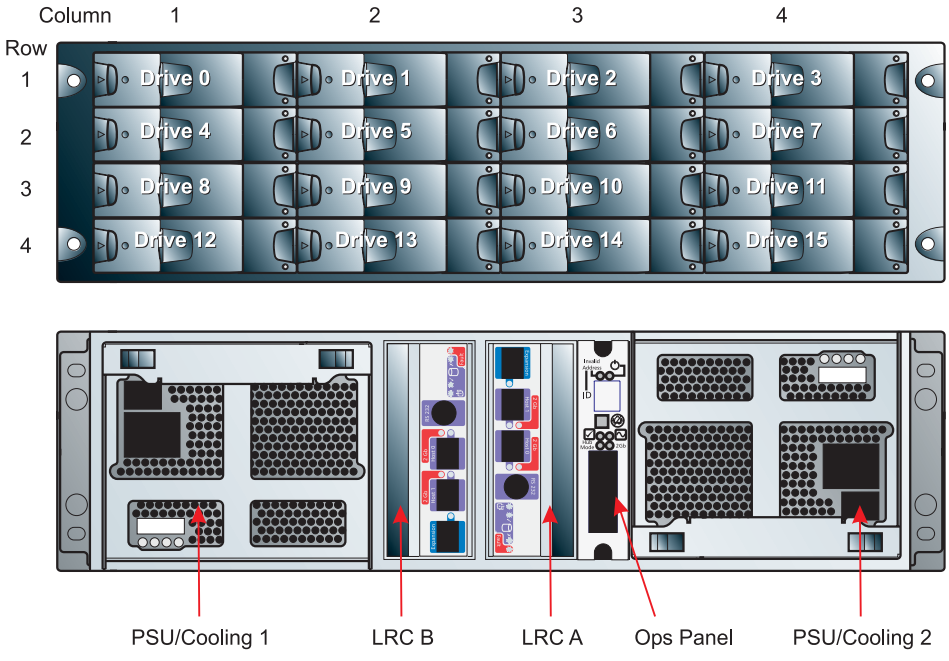
Warning: The battery is not user replaceable. There is a danger of explosion if the battery is incorrectly replaced. The battery should only be replaced by trained service personnel; refer to battery replacement procedure. Dispose of used batteries in accordance with the manufacturer's instructions and National regulations.

Installation

Fit the modules into the bays defined. Bay numbers are defined by column/row.

Note: Drives must always be fitted in Locations 0 and 15. This is the minimum configuration.

Figure 1 Module Locations



Fitting PSU/Cooling Modules

Install in the rear of the enclosure in positions 1 and 5.

1. Check for damage, especially to the rear connector on the PSU/Cooling module.
2. Handle the module carefully and avoid damaging the connector pins. Do not install the module if any pins appear to be bent.
3. With the PSU handle in the open position, slide the module into the enclosure
4. Cam the module home by manually closing the PSU handle (see Figure 2). A click should be heard as the handle latches engage.
5. Connect the power supply cord to the power source and switch the PSU on.

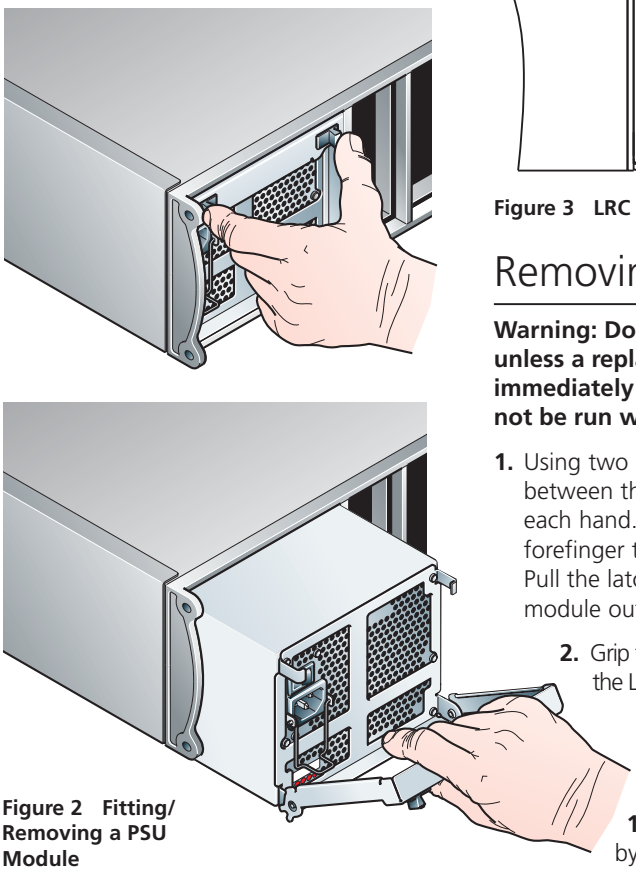


Figure 2 Fitting/ Removing a PSU Module

Removing PSU/Cooling Modules

Warning: Do not remove this module unless a replacement can be immediately added. The system must not be run without all units in place.

1. Switch off and **disconnect the power supply cord**.
2. Squeeze the two latches on the PSU handle together and open the handle (Figure 2) to cam the PSU/Cooling module out of the enclosure.
3. Grip the handle and withdraw the module.

Fitting LRC Modules

1. With the latch in the open position, slide the LRC module into the enclosure until the latch engages automatically.
2. Cam the module home by manually closing the latches (see Figure 3).
3. A click should be heard as the latch engages.

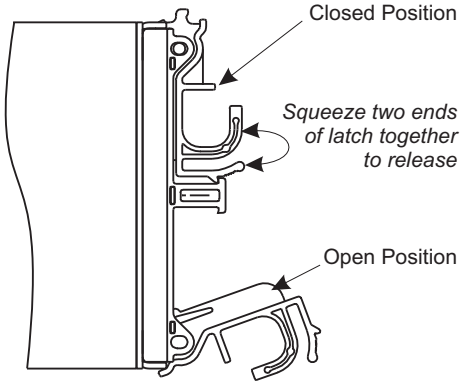


Figure 3 LRC Module Latch

Removing LRC Modules

Warning: Do not remove this module unless a replacement can be immediately added. The system must not be run without all units in place.

1. Using two hands, grasp each latch between the thumb and forefinger of each hand. Squeeze thumb and forefinger together to release the latch. Pull the latches forward to cam the module out of the enclosure.
2. Grip the latch handles and withdraw the LRC.

Fitting Drives

1. Release the carrier handle by pressing the latch in the handle towards the right and insert the carrier into the enclosure.

Important: Ensure that the carrier is orientated so that the drive is uppermost and the handle opens from the left (See Figure 4).

2. Slide the carrier, gently, all the way into the enclosure.
3. Cam the carrier home - the camming foot on the base of the carrier will engage into the slot in the enclosure.
4. When the carrier is fully home, close the handle - a click should be heard as the latch engages.

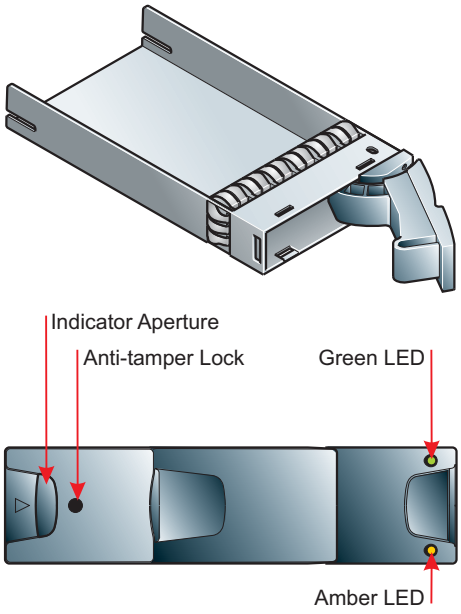


Figure 4 Drive Carrier Module
Note: Ensure that the handle always opens from the left.

Drive Enclosure Device Addressing

Select_ID Values (DECIMAL)	Mode 0 16 Drive Switch range setting			
	SWITCH			
Device Slot	1	2		7
RAID 0	0	NA		NA
RAID 1	1	NA	Continued up to	NA
SES Tgt 1	NA	NA		NA
SES Tgt 2	NA	NA		NA
Drive 1-1*	4	20		100
Drive 1-2	5	21		101
Drive 1-3	6	22		102
Drive 1-4	7	23		103
Drive 2-1	8	24		104
Drive 2-2	9	25		105
Drive 2-3	10	26		106
Drive 2-4	11	27		107
Drive 3-1	12	28		108
Drive 3-2	13	29		109
Drive 3-3	14	30		110
Drive 3-4	15	31		111
Drive 4-1	16	32		112
Drive 4-2	17	33		113
Drive 4-3	18	34		114
Drive 4-4*	19	35		115

** There must be a drive present in bay 1/1 or 4/4 to enable SES communications to operate. Installing drives in both of these bays will provide redundant SES communication paths.*

Setting the FC-AL Device ID Range

Set each enclosure in a physical loop to a different range.

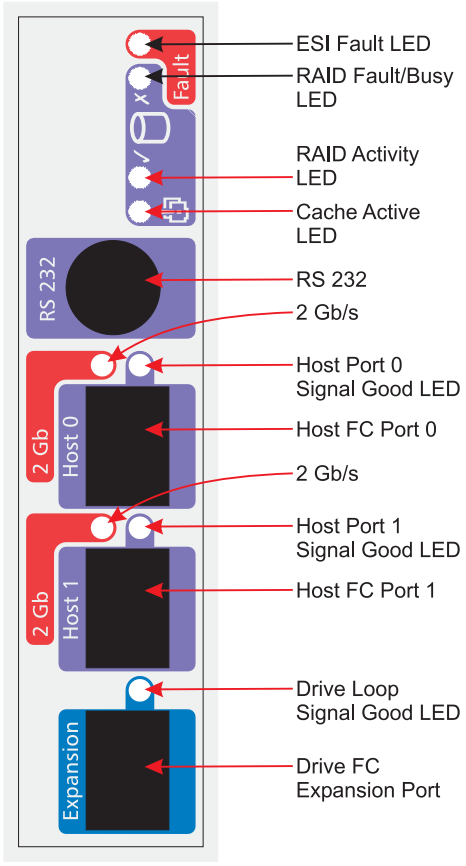


Figure 5 I/O Module Backplate

Operator/Control Panel

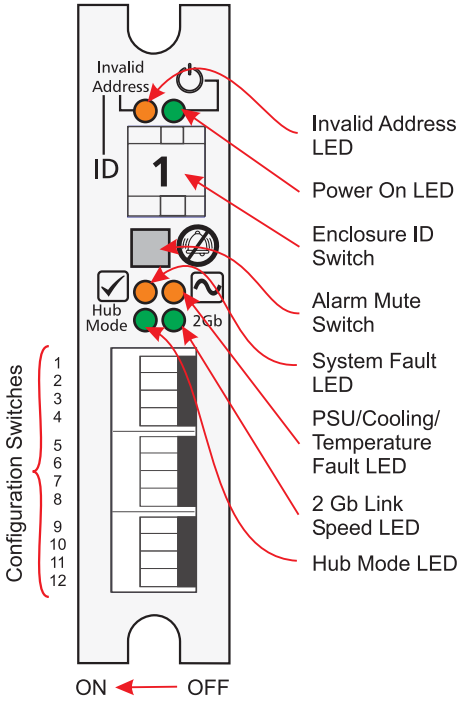


Figure 6 Operator/Control Panel

Operator/Control Panel LEDs

Ops Panel LEDs						Other Associated LEDs or Alarm	State Description
Power (Green)	PSU/Cooling/ Temp. (Amber)	System (Amber)	Address Mode Error (Amber)	FC Loop Speed	Hub Mode Selected		
On	Off	Off	Off	Off	Off		5V Aux present, Overall Power failed
On	On	On	On	On	On	Single beep,then double beep	Ops Panel power On (5s) test state
On	Off	Off	Off				Power On, all functions good
On	On	Off				PSU LEDs or Fan LEDs	Any PSU Fault or Fan Fault
On	On	Flash					Over or Under temperature
On	Off	On				ESI LED on LRC	ESI processor A Failed
On	Off	On				ESI LED on LRC	ESI processor B Failed
On	Off	On				None	Unknown (invalid or mixed) Module type installed, or 12C Bus Failure (Inter ESI processor), or Backplane autostart watchdog failed.
On	Flash	Flash				PSU Removed	PSU removed and System power redundancy check option set. No indication if option not set.
On	Off	Flash					No SES drives fitted
On	Flash	On				Intermittent audible alarm	Ops to ESI Communications Failed
On			Flash				Invalid address mode setting (change thumb wheels to valid range)
On				On			2Gb FC Drive loop speed selected
On					On		RAID ONLY Host side Hub mode enabled

Operator/Control Panel Switch Functions

Switch Number	Function	Recommended Setting		Definition
1	Loop Select, Single (1x16) or Dual (2x8)	On		LRC Operates as Single Loop of 16 Drives Mandatory
2	Loop Terminate Mode	On		If No Signal is present on External FC port, the loop will be 'healed' internally
3	Hub Mode Select	On		Raid Host FC Ports will be linked together internally
4	Not Used			
5 & 6	RAID Host Hub Speed Select switches	Sw 5	Sw 6	
		On	Off	Force 2Gb/s
		Off	Off	Force 1Gb/s
7 & 8	Drive Loop Speed Select	Sw 7	Sw 8	
		On	Off	Force 2Gb/s
		Off	Off	Force 1Gb/s
9 & 10	Drive Addressing Mode Selection	Sw 9	Sw 10	
		On	On	Mode 0
11	SOFT SELECT	On		Select Functions using the hardware switches
12	Not Used			

Note: Switch settings are only read at Power On.

Hardware Configuration

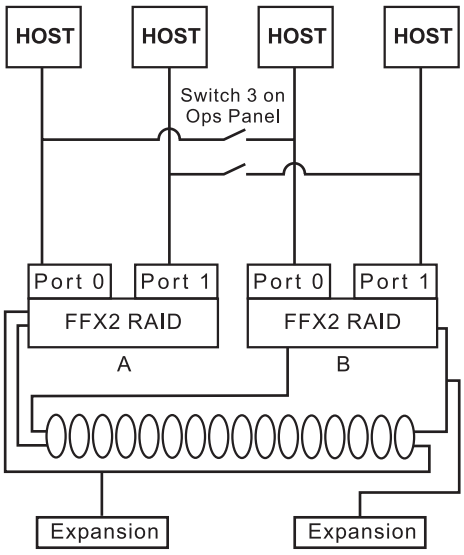


Figure 7 Hardware Configuration

Supported Configuration Tools

- Mylex supplied GAM 5.0 (Aspen) or above
- XDAM 1.3.4 or above

Connecting Multiple Enclosures

Multiple enclosures are connected together by using SFP to SFP patch cables. Expansion of the RS-1600-FC-FFX2 system should be achieved by the use of RS-1600-FC2 enclosures, up to a maximum of 6 additional enclosures. A typical expansion configuration is shown in Figure 8.

Note: All SFPs on the RS-1600-FC2 are In and Out connectors, therefore in 1 X 16 Mode any SFP connectors can be used in the FC2 enclosure.

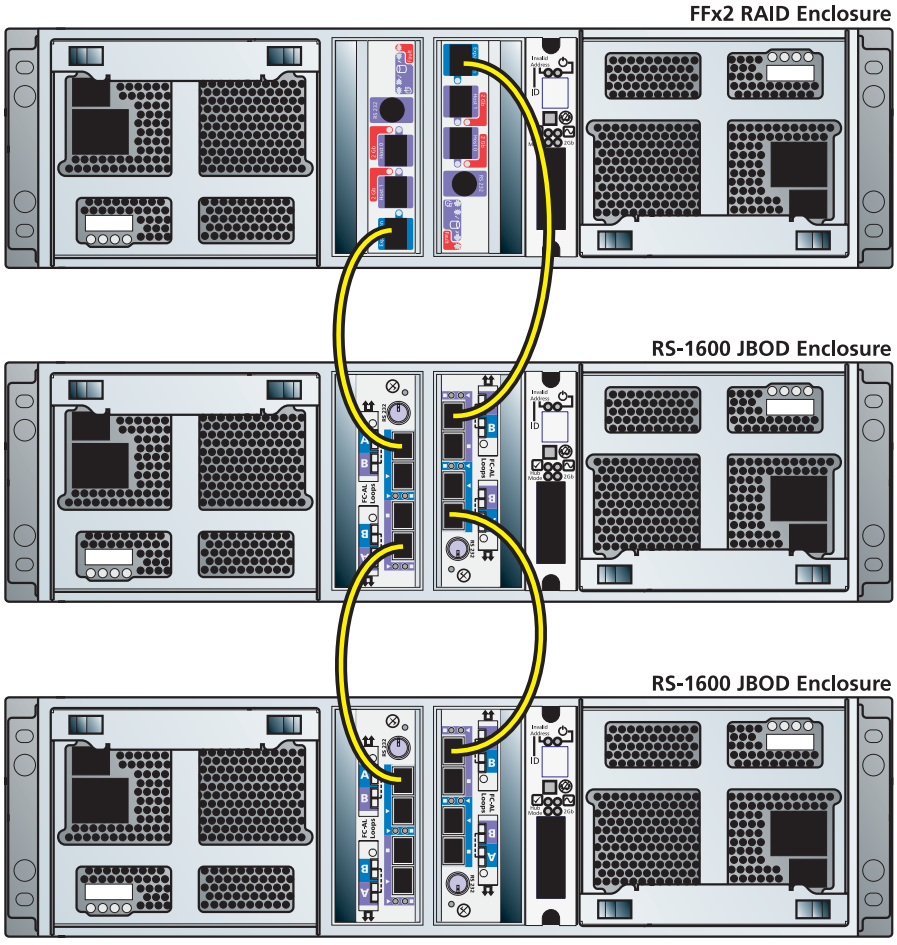


Figure 8 Twin Host Redundant LRC Expansion Configuration

Note: On the JBOD, any of the four connectors can be used as an In or an Out connection.