External Disk Tower

ARC-4038MI

(With 4/8-port Direct Attached 12Gb/s SAS/SATA Disk Box)

Quick Installation Guide

Version: 1.0
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FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

Manufacturer's Declaration for CE Certification

We confirm ARC-4038Ml has been tested and found compliant with the requirements in the council directive relating to the EMC Directive 2004/108/EC. Regarding to the electromagnetic compatibility, the following standards were applied:

EN 55022: 2006, Class B
EN 61000-3-2: 2006
EN 61000-3-3: 1995+A1: 2001+A2: 2005

EN 55024:1998+A1:2001=A2:2003
IEC61000-4-2: 2001
IEC61000-4-3: 2006
IEC61000-4-4: 2004
IEC61000-4-5: 2005
IEC61000-4-6: 2006
IEC61000-4-8: 2001
IEC61000-4-11: 2004

Contents

1. Introduction

This manual presents brief example of Areca compact disk tower box with external PCIe RAID adapters.

1.1 Overview

The ARC-4038Ml is an 8-bay 12Gb/s directly-attached storage enclosures for PC and Mac high capacity storage needs. Designed and leveraged with Areca existing high performance external PCIe RAID adapter, this disk tower can be configured to RAID levels 0, 1, 1E, 3, 5, 6, 10, 30, 50, 60, Single Disk or JBOD, making it an ideal solution for high performance and fault-tolerance protection video data. The ARC-4038Ml is a compact disk tower uses only two high speed SFF-8644 connection to the HBA or RAID controller installed in your system. High transfer rates make the ARC-1883X or other 12Gb/s HBA/RAID adapter with ARC-4038Ml well suited for audio/video application especially the rapidly growing demand from the Mac video editing markets.

The ARC-4038Ml has integrated the 12Gb/s re-driver chip on its backplane. This can guarantee the signal from external connector on the external 12Gb/s SAS HBA/RAID adapter to the ARC-4038Ml cable-less backplane connector without compromising performance. The intelligent cooling continuously adapts to environmental conditions by automatically controlling the speed of cooling fans. This super silent design, optimizing balance between noise reduction and necessary cooling, helps the resellers to offer the cost effective storage solution for video editing and digital content creation.

1.2 Features

Disk Tower Features

- Cable-free 12Gb/s re-driver SAS/SATA backplane design for 8 removable drive trays
- Simple serial bus connection for fault/activity LED (only with Areca external RAID adapter)
- Compatible with 12Gb/s SAS host bus adapter and 12Gb/s SAS RAID controllers

- Built-in intelligent cooling fans for self-contained ventilation and buzzer alarm
- Can be used with 2.5" drives without the use of converters.
- LED indicators for fault and Activity/power on each HDD tray

External Compact Disk Tower Box	
	ARC-4038MI
Host Connector	2 x SFF-8644
Host Type Cable	1 or 2 x SFF-8644 to SFF-8644
Disk Interface	8 x 12Gb/s SAS/SATA
Form Factor	Compact – 8 Disks Tower
Power Supply/In/Out	220W / 90-265V AC/ +12V/16A, +5V/16A, +3.3V/14A
Dimension (W x H x D)	146 x 302 x 290 mm
Weight	14.9 lbs / 6.8Kg

PCIe 3.0 External 12Gb/s SAS RAID Adapter Comparison	
Model name	ARC-1883x/1226-8x
I/O Processor	Dual Core RAID-on-Chip (ROC) 1.2 GHz Processor
Form Factor	Low Profile: 64.4(H) x 169.5(L) mm
Host Bus Type	PCIe 3.0 x 8 Lanes
Driver Connector	2 x SFF-8644
Drive Support	Up to 126/8 12Gb/s SAS or 6Gb/s and 3Gb/s SAS/SATA HDDs
RAID Level	0, 1, 1E, 3, 5, 6, 10, 30, 50, 60, Single Disk, JBOD
On-Board Cache	2GB on-board DDR3-1866 SDRAM with ECC
Management Port	In-Band: PCIe Out-of-Band: BIOS, Lan and LCD (optional)
Enclosure Ready	External Serial Bus

2. Hardware Installation

This section describes the procedures for installing Areca 8 bays disk tower.

2.1 Before You First Installing

Thanks for purchasing the Areca 8 bays disk tower as your data storage subsystem. This quick installation guide gives simple step-by-step instructions for installing and configuring the Areca 8 bays disk tower. To ensure personal safety and to protect your equipment and data, reading the following information package list carefully before you begin installing.

Package Contents

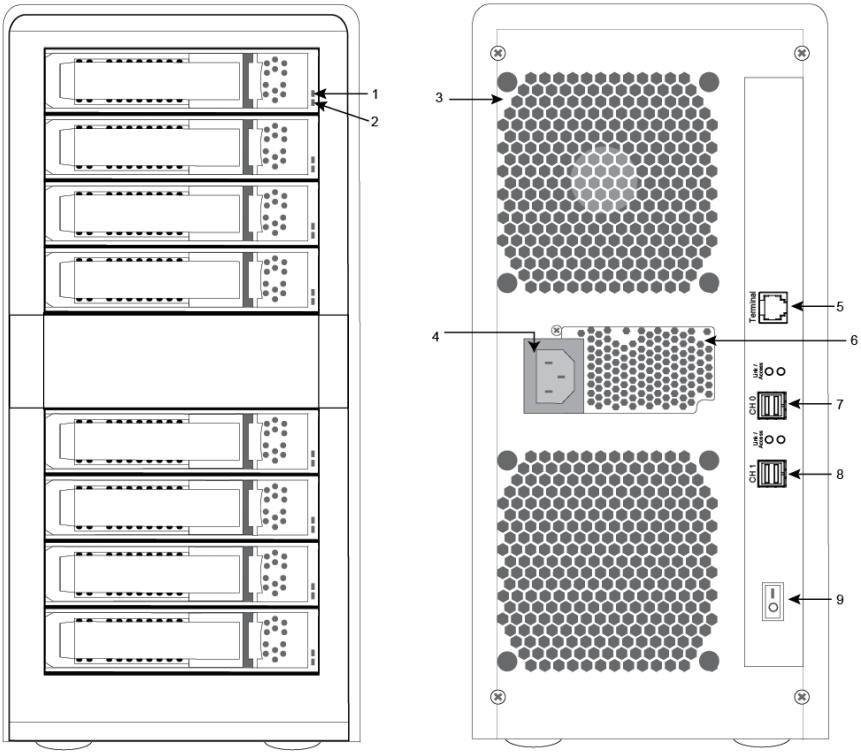
Open the package carefully, and make sure that none of the items listed below are missing. **(disk drives and disk mounting brackets are not included):**

ARC-4038Ml

- ARC-4038Ml 8 disk Mini SAS HD 4x (MS) disk tower
- 2 x external SFF-8644 to SFF-8644 cable (optional)
- 1 x serial communications RJ11 to RS-232C cable
- 32 x drive mounting screws (4 screws for each tray)
- 1 x Quick Insatallation Guide

2.1 Drive Box Interconnects

The following figures illustrate the ARC-4038Ml disk tower connector location and definitions.



Front View	Rear View
1. Disk Activity LED 2. Disk Fault/Link LED	3. System Fan 4. Power Connector 5. RJ11 (SI) Serial Bus Input 6. Power Supply Fan 7. SFF-8644 Connector0 8. SFF-8644 Connector1 9. On/Off Switch

2.3 RAID adapter Board Layout

The following figures illustrate the Areca external PCIe 3.0 12Gb/s SAS/SATA RAID adapter connector location and definitions. If you need more detailed information about external RAID adapter, please visit: http://www.areca.com.tw

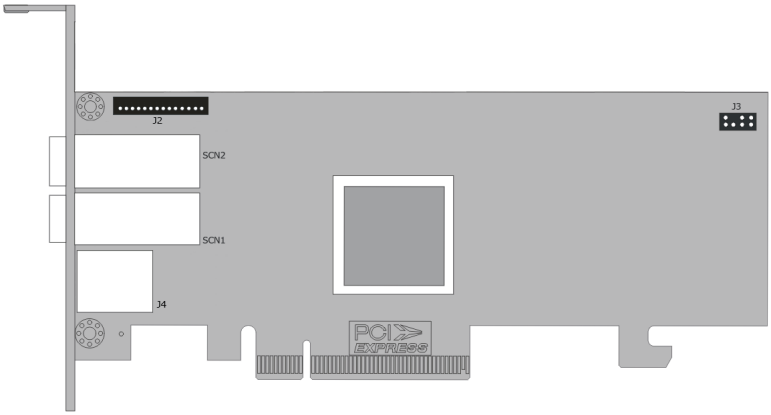


Figure 2-1, ARC-1883x/1226-8x Top View (PCIe 3.0 x8 external 12Gb/s SAS RAID controller)

Connector	Type	Description
1. (J2)	Flash-based/Battery Backup Module Connector	14-pin box header
2. (J3)	I^2C/LCD Connector	7-pin header
3. (J4)	Ethernet Port	RJ45
4. (SCN1)	Mini SAS HD 5-8 Ports (External)	SFF-8644
5. (SCN2)	Mini SAS HD 1-4 Ports (External)	SFF-8644

Table 2-1, ARC-1883x/1226-8x Connectors

2.4 Installation

Your enclosure supports up to 8 3.5-inch disk drives or 2.5-inch SAS or SATA 12.0Gb/s drives, each one contained in its individual drive carrier. Each drive is hot-pluggable, allowing you to remove and insert drives without shutting down your enclosure.

Following the instruction below to install ARC-4038MI compact tower enclosure.

Step 1. Installing SAS/SATA Drives in the ARC-4038MI Enclosure

Follow the steps below to install the 3.5-inch drives or 2.5-inch drives into the drive tray.

a. Install the drives into the drive tray and make sure the holes of the disk trays align with the holes of the drive.

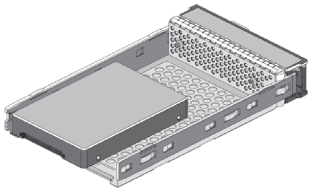


Figure 2-2, Put 2.5-inch SAS/SATA drive into disk tray

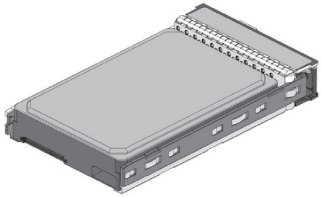


Figure 2-3, Put 3.5-inch SAS/SATA drive into disk tray

b. Turn the drive tray upside down and using a screwdriver to secure the drive to the drive tray by four of the mounting screws.

Figure 2-4, Installing 2.5-inch SAS/SATA Drive

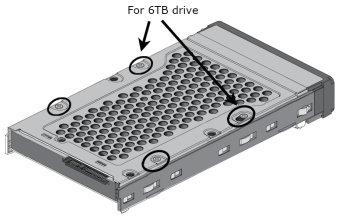


Figure 2-5, Installing 3.5-inch SAS/SATA Drive

c. After all drives are in the drive tray, slide all of them back into the ARC-4038Ml enclosure and make sure you latch the drive trays.

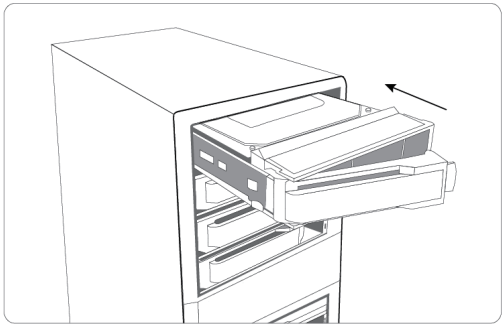


Figure 2-6, Slide drive tray back into the ARC-4038Ml

Note:

Please secure four of the mounting screws to the tray, otherwise the ARC-4038Ml may produce an annoying BUZZ sound in a few environments.

Step 2. Connect the External Box Cable

The ARC-4038Ml is an external solution with Mini SAS HD SFF-8644 host connectivity for use with your PC or Mac workstation.

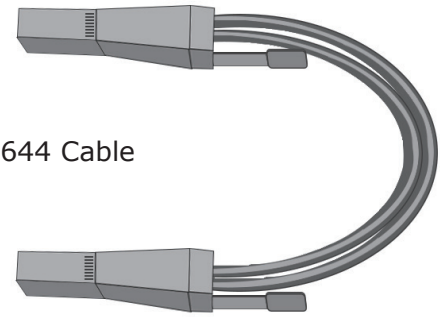
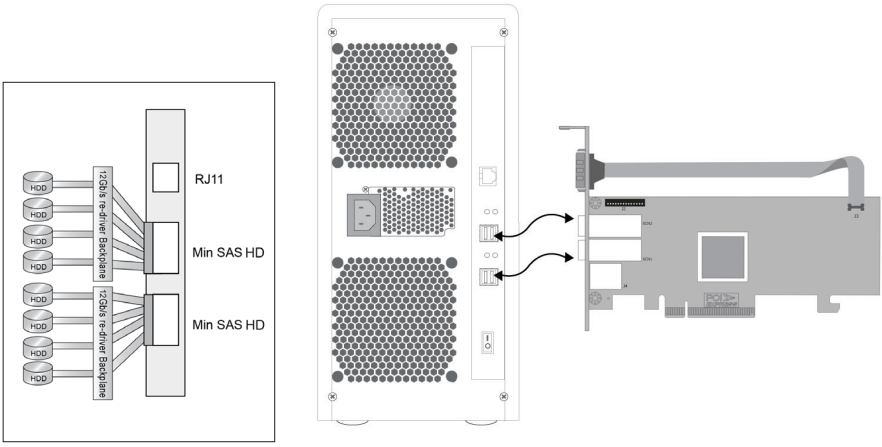


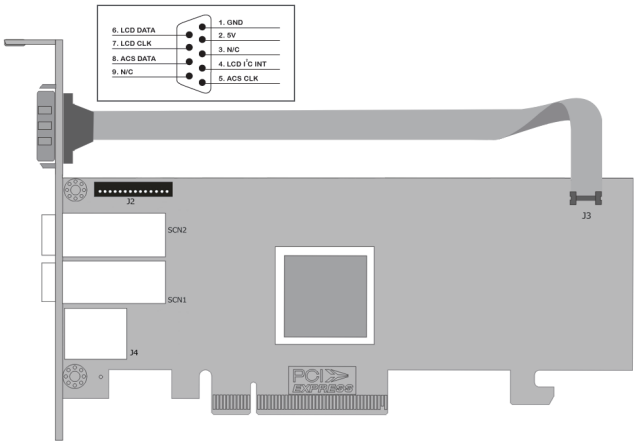
Figure 2-7, Mini SAS HD SFF-8644 Cable



Step 3. Install the External Serial Bus LED Cable (Optional)

You also can connect the serial bus interface RJ11 connector to Areca external RAID adapter RS232 connector. This signal provide the drive status information including activity LED and fault LED.

The following is the serial bus signal name description for LCD & fault/activity LED on the Areca RAID adapter.



PIN	Description	PIN	Description
		1	GND
6	LCD Module Serial Data	2	Power (+5V)
7	LCD Module Clock	3	N/C
8	Fault/Activity Serial Data (ACS)	4	LCD Module Interrupt
9	N/C	5	Fault/Activity CLK (ACS)

You can connect the serial bus from the ARC-4038MI serial bus input connector (RJ11) to the Areca RAID adapter serial bus output connector (RS-232), as shown below.

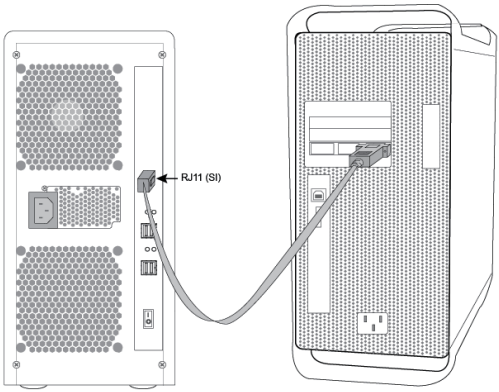


Figure 2-8, Connector Connected Between Areca External RAID Adapter ARC-1883x/1226-8x & ARC-4038MI

The following table describes the fault/activity LED function.

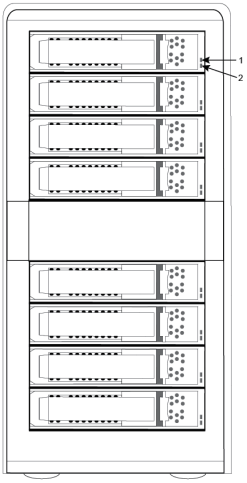


Figure 2-9, Activity/Fault LED for External ARC-4038MI.

Tray LED	Normal Status	Problem Indication
1. Activity LED (Blue)	1. When the activity LED is lit, there is I/O activity on that disk drive. 2. When the LED is not lit; there is no activity on that disk drive.	N/A
2. Fault/Link LED (Red/Green)	1. When the fault LED is lit, there is no disk present. 2. When the link LED is lit, there is a disk present.	1. When the fault LED is off, the disk is present and status is normal. 2. When the fault LED is blinking (2 times/sec.), the disk drive has failed and should be hot-swapped immediately. 3. When the activity LED is lit and fault LED is fast blinking (10 times/sec.) there is rebuilding activity on that disk drive.