

SONY



Optical Disc Archive

Set to revolutionize video and data archiving



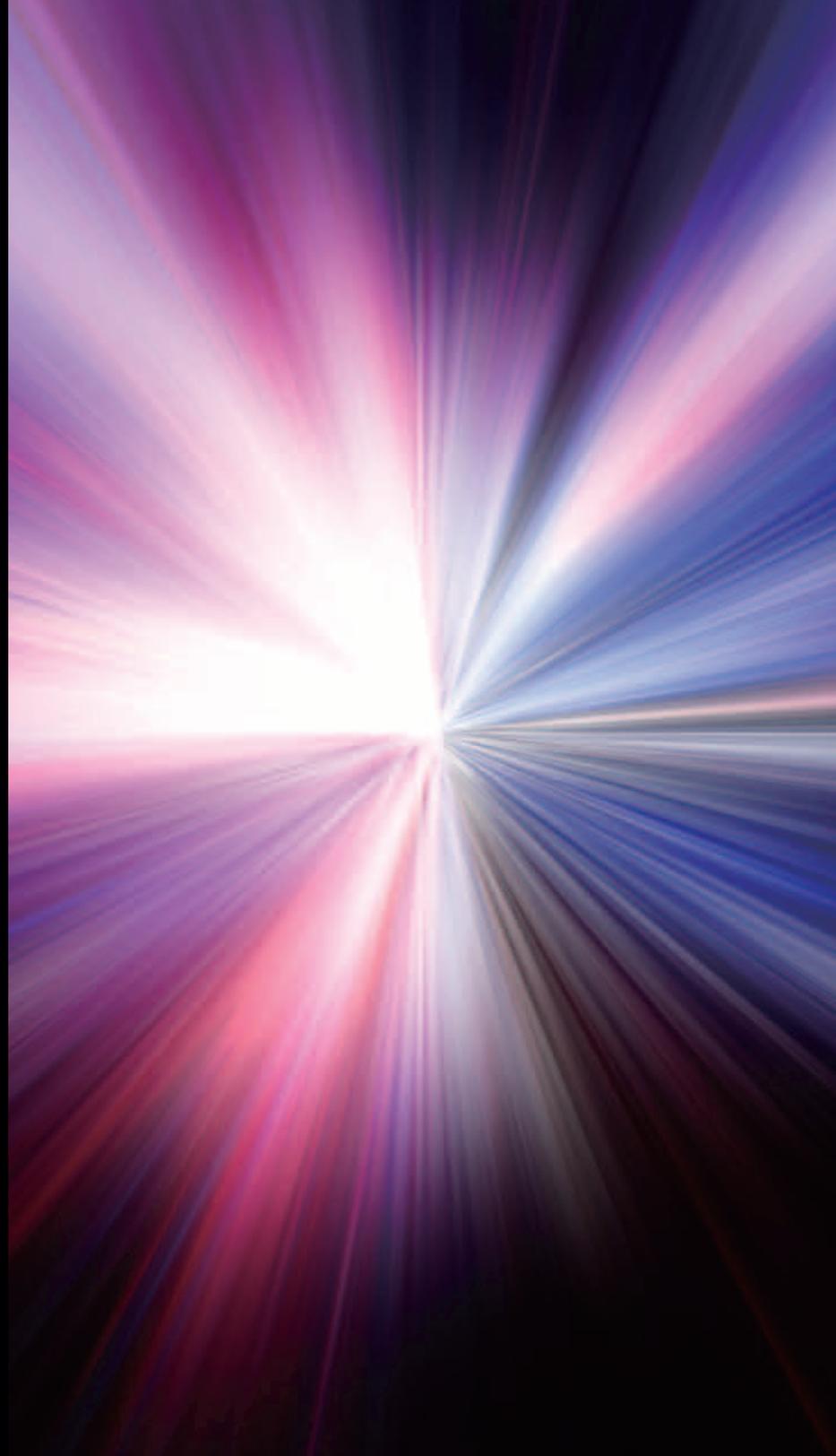
Optical Disc Archive

Over the past several decades, movie studios, broadcasting networks and production facilities across the world have accumulated a massive quantity of tape and digital assets. To manage this, the industry has an immediate need for a reliable, easy-to operate, cost-effective file-based archive system.

Sony's Optical Disc Archive is an easy to use storage system that incorporates industry proven Blu-ray® optical disc technology. This system offers increased capacity, performance and excellent disaster tolerance in a simple long term approach. Inter-generational compatibility virtually eliminates the unwanted task of frequent data migrations.

Optical Disc Archive systems are supported by Sony and 3rd party applications to meet your ongoing archival needs.

Sony invites you to learn more about our Optical Disc Archive solutions.



Hollywood Film Archiving

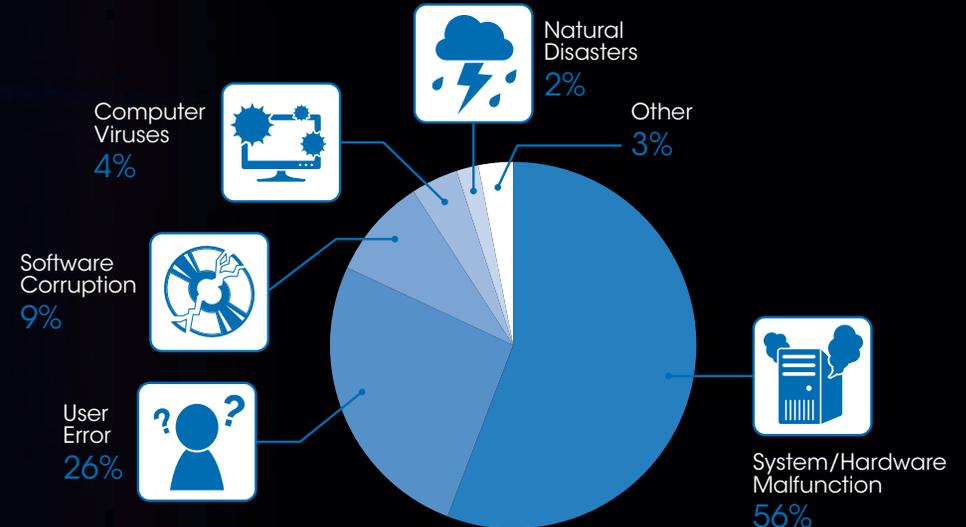
The modern motion picture business does a very comprehensive and reliable job of archiving feature-length motion pictures using film archives. But looking back over the past 100 years, Hollywood's history of archiving has been uneven. Many of the earliest movies have been lost because long-term preservation of motion pictures was not considered important – either commercially or culturally. Many titles in early film libraries on flammable nitrate stock were destroyed by fire or merely thrown in the trash; other generations saw their film masters turn to "vinegar" in hot, humid warehouses until current climate control requirements for long-term film preservation were well understood. As a result, fewer than half of the feature films made before 1950 have survived, and less than 20% have survived from the 1920s [US, LC, NFPB, Natl. Film Preservation Plan].



Why data management is important

Today, files can be lost from computers in any number of ways—you might accidentally delete a file, a virus might wipe one out, or there could be a complete hard drive failure. When a hard drive crashes unexpectedly, it can be devastating, especially if the content cannot be replicated from the original source or if it affects normal business operation. Important data such as video, photos, significant documents, downloaded music, and more can be lost forever. At best it can cost several thousand dollars to recover from lost data.

There are many options for backing up content, without any sophisticated equipment—you can use external hard drives, optical discs, online storage or even the cloud. Best practices suggest that archivists back up data to multiple places and media types.



Source: Ontrack Data Recovery
www.ontrack.co.uk/understandingdataloss

Optical Disc Archive

Optical Disc Archive is an optical disc-based storage system based on Blu-ray technology but inherits some key attributes from Sony's Professional Disc (XDCAM®) format. This system involves the use of multiple bare discs contained within a very robust cartridge. No specialized software is needed to manage the disc cartridge and drive-providing a seamless read/write capability presented as a single volume with a viewable file directory.

Advantages

■ Long Archival Life - Up to 50 Years*

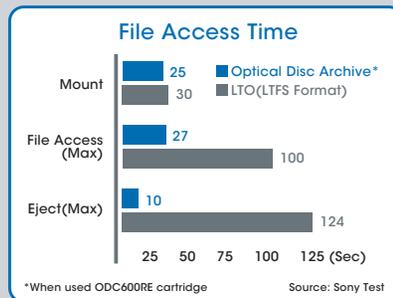
Digital photographs, digitized video, audio recordings, corporate records and government documents are just a few of the valuable digital assets that organizations want to preserve for years, if not forever. Since the Optical Disc Archive system is extremely robust with an average media life estimated up to 50 years, your data is protected for the long term. In addition to media longevity, generational backward compatibility is proven as far back as the 1980's as CD's remain compatible today with the latest Blu-ray players. This trend is expected to continue in the future with the Optical Disc Archive system, allowing future Optical DiscArchive drive generations to be backward read compatible.

■ High Reliability

By its nature, optical disc technology is highly durable and resilient in a wide range of environmental conditions. The simple structure and the robustness of the media make it ideal for shelf archiving and material exchange.

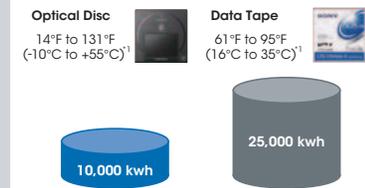
The Optical Disc Archive system takes reliability to the next level:

- Using write once (R) cartridge media prevents accidentally or unauthorized changes to data to meet data authenticity requirements.
- Write Verify mode ensures data is archived accurately for future data restore.
- Non-contact random access recording technology, ultra high read count and protective cartridge shell is ideal for data portability and preservation.
- The utility "Roll Back" function allows deleted files to be restored.



■ Eco-friendly Design

As environmental conditions continue to be a concern, many organizations strive to reduce their carbon footprint. In today's content creation industry, one practical way to save on energy is to archive infrequently used files to a low power storage system with long term archival capability. The Optical Disc Archive system enables practical management of your ever-increasing media assets with minimal environmental burden. It greatly reduces waste by not using power when data is sitting idle, by avoiding frequent data migration and cuts energy consumption required to control temperature and humidity, thus contributing to reduce CO2 emissions. All in all, this system can help address your green energy initiatives while preserving your valuable assets.



Hypothetical scenario:
In Tokyo, data tapes need air conditioning (AC) for a whole year, consuming 25,000 kwh over 10 years. Optical discs only need AC for three summer months, consuming only 10,000 kwh over 10 years.
¹ Optimum storage temperature

■ Open Platform

Sony Optical Disc Archive System is an open platform which allows 3rd party affiliates the ability to support and enhance the system through collaboration and multi-sourcing of key components.

*The following manufacturers have already expressed their support for the Optical Disc Archive:
Adobe, ASG-Atempo, AVID, Dalet, Front Porch Digital, Harris, Qstar, SGL, Square Box Systems Ltd, Vizrt

Optical Disc Archive Cartridge



A variety of high capacity media cartridges are available for the Optical Disc Archive System, From 300 GB to 1.5 TB, Write-once and Rewritable, you can select the media capacity that best fits your workflow.

■ Mass storage media with proven optical disc technology

The cartridge* contains 12 discs that appear to the user as one volume of mass storage with an easy to see file directory. The file format is UDF (Universal Disk Format), to allow for easy media exchange without the need for specialized software. Each cartridge allows random access to files and high speed data retrieval.

*The cartridge cannot be opened by users.



■ High Reliability, & Durability, Optimized for long term archiving.

The non-contact read/write technology of optical disc enables high reliability. Optical disc technology is extremely robust with a media archival life estimated at up to 50 years*, substantially longer than other storage media in the market. The cartridge is designed to be highly durable and resilient in a wide range of environmental conditions. This enables you to store the media in the typical office environment and does not require special climate controlled conditions.

*Estimated average archival life based on internal acceleration testing.

■ More Convenient, Efficient Asset Management

The media has a built-in "Cartridge Memory". The built-in "Cartridge Memory" provides seamless integration between the cartridge and drive by storing basic content recording information. With the future release of application software, the cartridge memory feature will allow users to identify the contents of the media with mobile devices for efficient asset management, such as cartridge tracking and digital asset inventory control.



Cartridge Memory

Model Name	ODC300R	ODC300RE	ODC600R	ODC600RE	ODC1200RE	ODC1500R
Media Type	Write Once	Rewritable* ¹	Write Once	Rewritable* ¹	Rewritable* ¹	Write Once
Capacity* ²	300 GB		600 GB		1.2 TB	1.5 TB
Recording time* ³ MPEG HD422 50Mbps	8.5 Hours		18.5 Hours		38 Hours	48 Hours
Rewritable Cycles	-	More than 1,000 times	-	More than 1,000 times	More than 1,000 times	-
Read Cycles* ⁴	More than 1,000,000 times					
Operation Temperature	41°F to 131°F (5°C to 55°C)					
Storage Temperature/ Humidity	14°F to 131°F (-10°C to +55°C) / 3% to 90% RH (Short term Transportation condition) 50°F to 86°F (10°C to 30°C) / 30% to 70% RH (Long term Recommended)					
Estimated Archival life* ⁵	50 years					

*1: Only the index reference is changed when the user deletes a file and the capacity on the disc is not restored, unless it is last recorded file on disc. The initial capacity can only be restored by re-formatting the cartridge.

*2: Recording capacity depends on the usage environment. Actual recordable capacity may be smaller than indicated on the cartridge.

*3: The recording time is for reference only and based on a fully recorded disc at the specified data rate.

*4: Read cycles = Number of time for reading data in the disc.

*5: Estimated average archival life based on internal acceleration testing.

Optical Disc Archive Drive

ODS-D55U Drive
ODS-D77U Drive



A starter system ideal for the camera owner / operator or a small studio is Sony's single-user solution, the stand-alone drives. This USB 3.0 drive plugs directly into compatible Macintosh® and Windows® computers. It's the desktop solution that is ideal for long-term file protection and management, and an easy choice because each 12-disc cartridge functions as a single unified volume.

Main Features

Fast Transfer Speeds

ODS-D55U with transfer speeds of 330 Mbps (read) and 210 Mbps (write-once disc)
ODS-D77U more than doubles the read and write speeds of the ODS-D55U

		ODS-D55U	ODS-D77U
Read		330 Mbps	1.1 Gbps ^{*1,3}
Write ^{*2}	Write Once	210 Mbps	730 Mbps ^{*1,3}
	Re-writable	130 Mbps ^{*1}	300 Mbps ^{*1,3}

^{*1} Performance is varied based on type of cartridges.

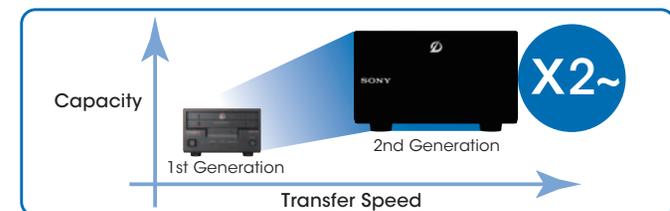
^{*2} Write performance is halved in write-verify mode.

^{*3} These values are subject to change.

- Up to 50 year rated media - Write-once (WORM) and Rewritable
- Large volume media - stores from 300 GB to 1.5 TB in a single data cartridge
- Virtually data migration free system
- Fast random file access to data files
- Easy-to-connect USB 3.0 interface
- Open Platform Architecture-Universal Disk Format (UDF)
- Supplied with "Content Manager" license

Drive Roadmap

Sony has led the industry with advances in optical storage. Based on that extensive knowledge and expertise, we continue to develop the next generation Optical Disc Archive Drive to support backwards read compatibility and higher disc capacity and transfer speeds.

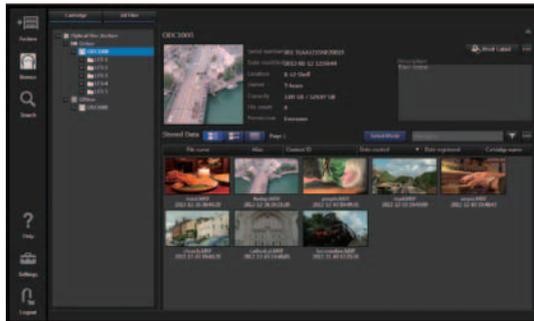


Simple Management

A Content Manager software license is supplied with the drive for stand-alone usage.

- Simple graphical user interface to manage files easily
- Supports troublesome tasks including creating metadata
- Print label function to improve work-flow efficiency
- Automatically generates proxy and thumbnail metadata for easy browsing of on-line and off-line cartridge media
- Supports a variety of formats for creating metadata
- MD5 checksum for archive data
- Import/export metadata created in the cartridge unit

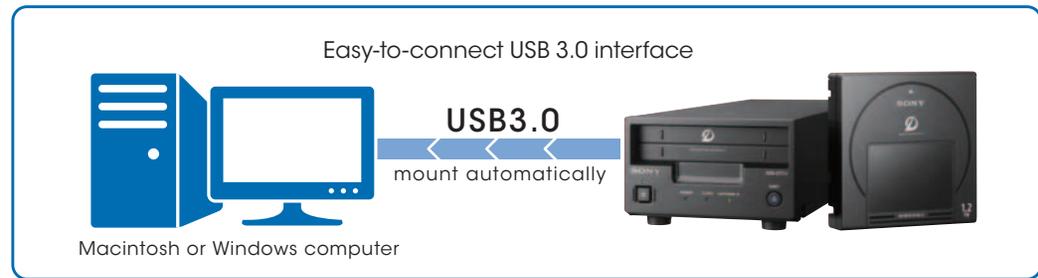
User Interface



Support Format for creating Metadata

	File Format
XAVC™	MXF
MPEG HD 422	MXF
MPEG HD 420	MXF
MPEG HD	MP4
AVCHD™	MTS, M2TS
MPEG IMX	MXF
HDV™	M2T (Windows), MOV (Macintosh)
DV®	AVI (Windows), MOV (Macintosh)
ProRes	MOV
DNxHD	MOV

System Example



Specifications

	ODS-D55U	ODS-D77U
Power Requirements	12 V DC (AC adaptor supplied)	
Power Consumption	20 W (Average)	
Operating Temperature	41°F to 104°F (5°C to 40°C)	
Storage Temperature	-4°F to +140°F (-20°C to +60°C)	
Weight	8 lb 13 oz (4 kg)	
Dimensions (W H D)	5 3/4 x 3 3/8 x 15 3/4 inches (146 x 84 x 398 mm) (excluding protrusion)	
Input/Output	Super Speed USB (USB3.0)	
Supplied Accessories	AC Adaptor (1), USB3.0 Cable (1), Operation Manual (1), Operation Manual CDROM (1), Serial Number Sheet for Contents Manager (1)	

ODS-D77U



Front Panel



Rear Panel

Optical Disc Archive Library

ODS-L10 10 Slots Library



Recommended for

Broadcast stations

Production houses

Educational facilities

Museums, galleries

Houses of worship

Corporations

Cable TV companies

Easy and Efficient Archive Management with Mini Robotic Library

Sony has also introduced new robotic Optical Disc Archive product: the ODS-L10 compact robotic library. Suitable for various applications, it is specifically designed for users with small- to medium-scale production systems, where media assets are managed by multiple users.

Main Features

- **Compact All-in-one Design**
This new mini robotic library holds up to two Optical Disc Archive drives, a maximum of 10 cartridges, and a built-in robotic mechanism in a 5U, 19-inch rack-mountable chassis.
- **Scalability**
The ODS-L10 contains up to 10 cartridges, storing a maximum of 15 TB with ten ODC-1500R cartridges and you can use different cartridges per category or user.
- **High Reliability**
The library supports an optional backup power supply units and Optical Disc Archive drives to ensure continuous operation in the unlikely event of one failing.
- **Easy to Connect**
The ODS-L10 can be connected to a network via an Ethernet cable through a control PC with easy setup (IP address setting)



Power supply and optional redundant power supply

Optical Disc Archive Cartridge x 10 slots

Drive x 2 (Optional)

ODS-L10 10 Slots Library

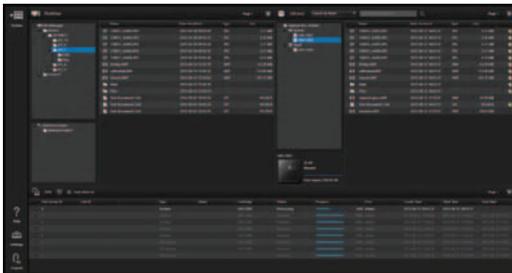
Cartridge carrier

File Manager

After File Manager software has been installed on a host computer, all operations can be controlled with a web-based GUI from each client computer.

- Web-based application for immediate client use
- Accessible by multiple clients simultaneously
- Automated control of library robotic system
- Simple drag-and-drop operation to archive and retrieve files
- Manage up to 480* hours near-line and effectively unlimited hours externally
- Placeholder window to archive multiple files from different folders to the same cartridge
- Add text metadata when archiving files, database backup functions
- Watch folder function to automate archive process
- Free text search of near-online and external cartridges
- Job status and job progress monitoring
- REST-based web service interface for integration with an external system

User Interface

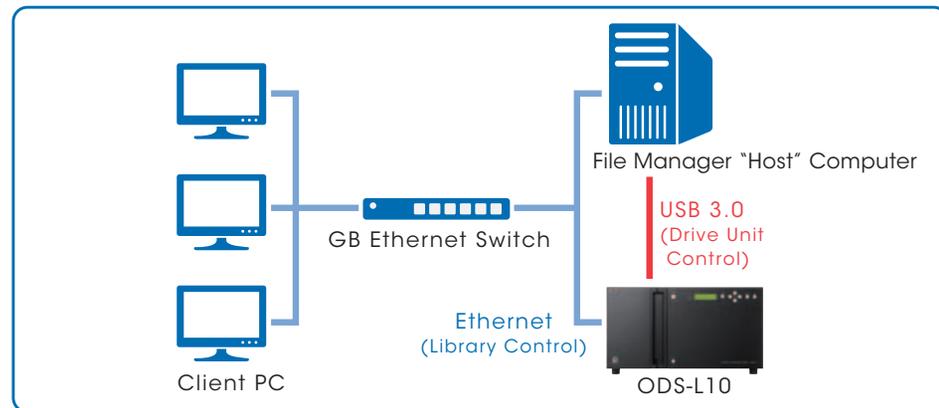


System Requirements

Host Computer	
Processor	Intel® Core™ i5 3 GHz or higher
Memory	4 GB or more
Hard disc Drive	1. 500 GB(or more) of capacity for OS and DB 2. 2 TB(or more) of cache space per drive; configuring RAID is recommended; you can also use other storage (NAS, etc.) as cache
OS	Windows 8 (or above), 64-bit
Port	2 x Ethernet port, 1 x USB3.0 port per drive
Client Computer	
Hardware	Any computer, provided common web browsers function correctly
OS*	Windows 7/8, 32-bit/64-bit Mac OS® X (Lion/Mountain Lion)
Web browser*	Chrome 22 or above Internet Explorer® 10 or above

* These are verified for proper operation of the software.

System Example



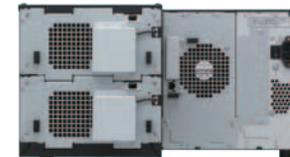
Specifications

	ODS-L10
Maximum Number of Drives	2
Maximum Number of Cartridges	10
Maximum Data Capacity	15 TB
Drive Interface	Super Speed USB (USB 3.0)
Library Control Interface	RJ-45 (x1), 1000BASE-T: IEEE 802.3ab, 100BASE-Tx: IEEE 802.3u
Power Requirements	100 V AC to 240 V AC, 50 Hz/60 Hz
Power Consumption	130W
Operating Temperature	41°F to 95°F (5°C to 35°C)
Storage Temperature	-4°F to +140°F (-20°C to +60°C)
Operating Humidity	20% to 90% (relative humidity)
Weight	59 lb 8.4 oz (27 kg) (not including drive units and cartridges)
Dimensions (WHD)	16 3/4 x 8 3/4 x 32 3/4 inches (424 x 220 x 830 mm) (excluding protrusions)
Supplied Accessories	File Manager license key sheet (1), Installation Manual (1), Operation Manual (1)

ODS-L10



Front Panel



Rear Panel

Optical Disc Archive PetaSite, Scalable Library

- ODS-L30M Master Unit
- ODS-L60E Extension Unit (Drive and Cartridge)
- ODS-L100E Extension Unit (Cartridge only)



Advantages

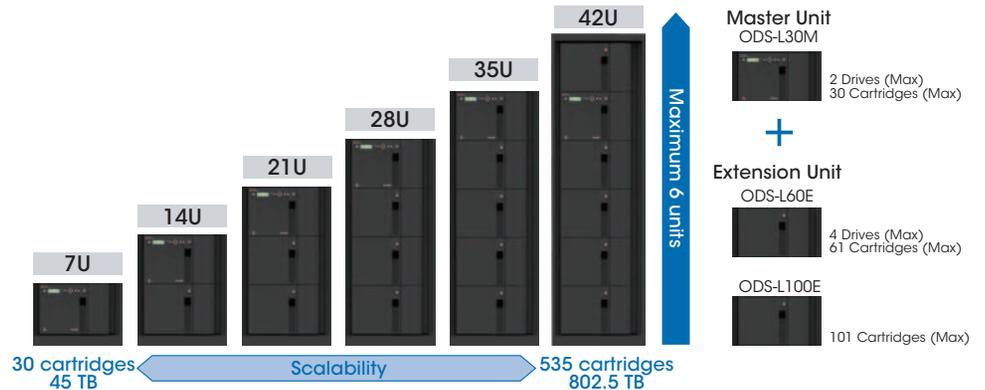
- Fully scalable
- Automated failover of library control path
- Co-existence of automated library operation and offline shelf management
- High performance of end-to-end operation
- Best solution for partial retrieve
- Interoperability between library and standalone drive
- File format-agnostic

Expandable with up to 5 Extension Units

The ODS-L30M is the master unit that forms the basis of the PetaSite Scalable Library system. Designed for growth and performance, the PetaSite is easily scalable by stacking modular ODS-L60E (Drive and Cartridge) and ODS-L100E (Cartridge only) extension units.

Any combination of ODS-L60E and ODS-L100E extension units, up to a total of 5 units, may be joined to a single ODS-L30M Master unit. This allows each PetaSite Library system to scale from 30 to 535 slots and up to 22 drives, depending on the combination of extension units. When higher capacity and performance is needed, PetaSite compatible Archive Management software can support multiple PetaSite Library systems.

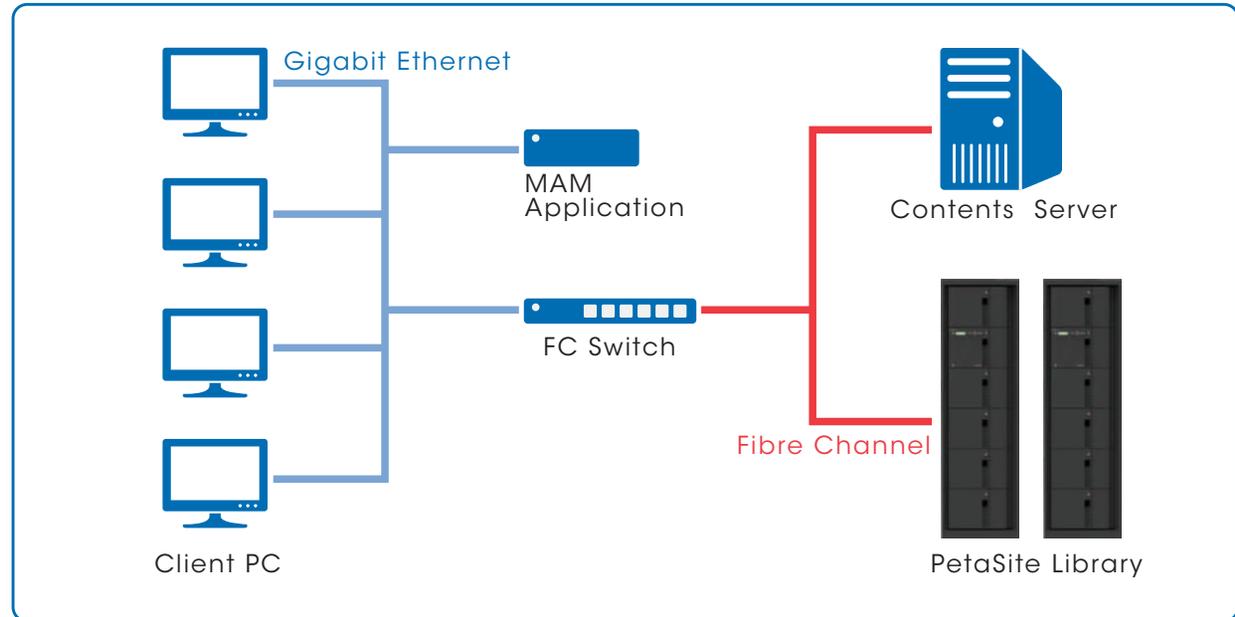
Flexible System Expansion



Ideal for Deep and Near-online Archives

Sony's Optical Disc Archive system is well suited for deep long-term digital media preservation, where data tape does not provide the assurance of Write Once (WORM) and disaster tolerant archive requirements. It can provide a second-copy for near-online or external storage at remote sites, ideal for business continuity/disaster recovery, production and post-production backup and for video, film, stock footage archives or national archives. The system can also be used for news and sports clips for proxy workflows and quick partial file restores, thanks to random access performance.

System Example



Specifications

	ODS-L30M	ODS-L60E	ODS-L100E
Maximum Number of Drives	2	4	0
Maximum Number of Cartridges	30	61	101
Maximum Data Capacity	45 TB	91.5 TB	151.5 TB
Host Interface	Fibre Channel 8Gbps		
Maintenance Interface	Gigabit Ethernet		
Power Requirements	100 V AC to 240 V AC, 50 Hz/60 Hz		
Power Consumption (Per Unit)	312 W	300 W	-
Operating Temperature	41°F to 95°F (5°C to 35°C)		
Operating Humidity	20% to 80% (relative humidity)		
Weight	66 lb 2.2 oz (30 kg) (not including drive units and cartridges)		
Dimensions (W x H x D)	17 5/8 x 12 1/4 x 37 1/8 inches (445 x 308 x 940 mm) (excluding protrusions)		





Optical Disc Archive

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