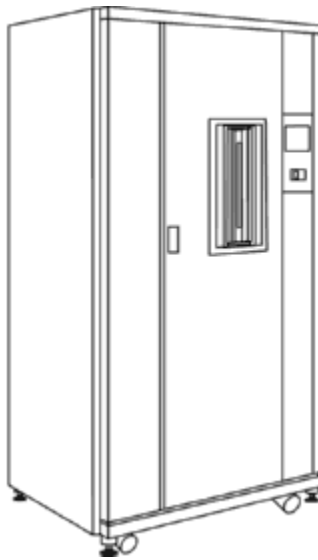


### Overview

## HP StorageWorks ESL9322S2 Tape Library



HP StorageWorks ESL9322S2 Tape Library

### At A Glance

- The Ultimate in High-Capacity Unattended Backup and Restore:
- The HP StorageWorks ESL9322S2 provides the ultimate in high-capacity unattended backup and restore for customers with large server pools and centralized backup and restore requirements, serviced by network attached storage devices or storage area networks. The consolidation of tape backup into a single shared storage device requires these devices to provide both high capacity and high performance, and the need for redundancy and high availability. With High availability features, component level redundancy and high capacity, the ESL9322S2 can provide years of fully automated operation for backup, save and restore, and hierarchical storage management of critical data, it is qualified with a variety of industry-standard backup application solutions and operating systems. With 222 or 322 slots and up to eight hot plug SDLT drives, the ESL9322S2 offers up to 51.52 TB of native data storage and native transfer rates up to 460.8 GB/hr.

### Standard Features

#### HP StorageWorks ESL9322S2 Tape Library Model

The HP StorageWorks ESL9322S2 Tape Library comes with up to 8 HP SDLT 160/320 GB tape drives (number of drives determined by SKU chosen) and has two models with 222 and 322 slots respectively.

ESL9322S2, 222 slot, 2 SDLT 160/320 drive, enterprise library	293409-B22
ESL9322S2, 222 slot, 8 SDLT 160/320 drive, enterprise library	293409-B28
ESL9322S2, 322 slot, 2 SDLT 160/320 drive, enterprise library	293410-B22
ESL9322S2, 322 slot, 8 SDLT 160/320 drive, enterprise library	293410-B28

The ESL9322S2 comes with a complete 222 or 322 slot library system configured with the associated number of drives, installation and user's manual, one-piece SDLT media, a copy of the Hewlett-Packard Storage Management Solutions CD. Customers are required to also purchase the necessary number of add-on drives, host bus adapters, SCSI cables, SDLT media, country specific power cords (pair) and applications software licenses in order to complete the library solution.

Due to the size and weight of the unit, a pre-sales site survey is required. The pre-sales site survey document is on

[http://www.compaq.com/support/techpubs/installation\\_guides/146587-001.html](http://www.compaq.com/support/techpubs/installation_guides/146587-001.html)

Installation services can be ordered separately on Hewlett-Packard Services as part of each library order (requires scheduling with local Hewlett-Packard Services provider).

**NOTE:** Does not include special site work, which may be required as a result of not meeting minimum site survey requirements.

#### The ESL9000 Enterprise Library Family

HP StorageWorks ESL9000 series of DLT libraries offer customers both high performance and high reliability. With its high availability feature set, the ESL9000 series provides for maximum uptime. Based on PCI backplane architecture, the ESL9000 series also provides a simple upgrade path for future "plug-in" features. The ESL9322S2 library is part of the ESL9000 series libraries.

#### High Availability

As data becomes more and more mission critical, and downtime becomes more costly to the enterprise, customers are requiring high availability consolidated storage solutions which offer hot swappable components and redundancies of key operating sub-systems (tape drives, controllers, power supplies). With redundant power distribution, power supplies, and cooling fans, coupled with "hot pluggable" drive carriers, hot swap power supplies and cooling fan modules, the ESL9322S2 offers the best in high availability for continuous operation.

#### Hot Pluggable Drives

The ESL9322S2 uses hot pluggable drive carriers, allowing drive replacement and additional drives to be added for capacity expansion without interrupting backup and restore functions. These hot pluggable drive trays allow for easy scalability of performance, as well as provide an easy upgrade path towards future drive technologies.

**NOTE:** The ESL9322S2 accepts only library ready drives specifically modified for use in the ESL9322S2 library.

#### Proven Reliability

Using SDLT 160/320 tape drives, and proven library robotics with a rating of 2,000,000 load/unload cycles, the ESL9322S2 provides the necessary high reliability.

### Standard Features

#### SDLT Technology

Digital Linear Tape uses a proven linear recording technology, a highly accurate tape guide system, and a read after write correction system to provide high-capacity, high reliability data backup and restoration. DLT has fast become the industry-standard secondary storage tape format for departmental and enterprise backup. The new generation SDLT tape drive, in addition to enhanced capacity and backup performance provides advantages several new features such as Laser Guided Magnetic Recording (LGMR™) technology, Pivoting Optical Servo (POS), Magneto-Resistive Cluster Heads (MRC) , Partial Response Maximum Likelihood (PRML) channel technology and Backward Read Compatible with earlier generation of DLT drives, to be able to read media written in DLT IV format.

#### Manageability

The ESL9322S2 configurations are fully supported through Insight Manager, providing information to administrators for both robotic and tape status changes, and fault status of redundant components. HP TSMC (Tape Storage Management Console) software provides diagnostics and easy firmware upgrade capabilities. Other data and automation manageability features, including multi-host direct connectivity, are provided via specific, third party applications software packages.

#### Warranty

One year parts exchange, one year on-site next day service  
 Additional Warranty protection can be purchased for all ESL9595 library products at the following URL:  
<http://h18006.www1.hp.com/products/storageworks/warranty.html>

#### Server Support

<b>High-End ProLiant Servers</b>	ProLiant DL760 ProLiant ML750	
<b>Departmental ProLiant Servers</b>	ProLiant DL580G2 ProLiant ML570G2 ProLiant ML530G2	
<b>Workgroup ProLiant Servers</b>	ProLiant DL380G2 ProLiant ML370 ProLiant ML350	
<b>AlphaServer Systems</b>	AlphaServer GS320, GS160, GS 80 AlphaServer ES45 AlphaServer ES40 AlphaServer DS20E	
<b>SCSI controller supported Hewlett-Packard ProLiant servers</b>	64-bit/66 MHz dual channel dual channel Wide Ultra3 SCSI Adapter	129803-B21
	64-bit/66 MHz Single Channel Wide Ultra3 SCSI Adapter	154457-B21
<b>Hewlett-Packard AlphaServer systems HP-UX servers</b>	StorageWorks Ultra LVD 3X-KZPCA-AA single channel Superdome rp8400 rp7400 (N class) rp5400 series (L Class) rp2450/2470 (A class) K class D Class	

### Standard Features

<b>Fibre Channel Controllers</b>	<b>ProLiant Servers</b>	64-bit/66 MHZ PCI to FC HBA (Persian/NetWare®) fca2101 HBA (lp952) QLA2200 (Linux®) QLA2340 (Linux and NetWare 6.0) FCA-2101 HBA (lp952) KGPSA-CB HBA (NT lp8000)
	<b>AlphaServer systems</b>	KGPSA-CA HBA (Alpha lp8000) FCA-2354 HBA (lp9002)
	<b>HP-UX Servers</b>	A6684A FC A6685A FC A5158A 1G FC A6795A 2G FC
	<b>Fibre Channel Routers</b>	NSR m2402 FC router e2400

### Application Support

For the latest updated compatibility matrix for ISV backup software supported go to:  
<http://www.compaq.com/products/storageworks/ebs/EBScompatmatrix.html>

### Automation and Network Utilities

Insight Manager v7.0  
 HP Tape Storage Management Console v2.3 (NT/2000), 2.0 (NetWare)  
 MRU (Media Robot Utility) v1.4  
 HP Library and Tape Tools V 2.9

Device/ISV/OS	Windows® NT® 4.0 SP6a	Windows 2000 SP2	Tru64 UNIX® 4.0g 5.1a	HP-UX* 11i, 11.0, 10.2,	NetWare 5.1 SP3	NetWare 6.0	Linux RH 7.1, 7.2 Linux SuSe 7.0	Sun Solaris2.6, 2.7, 2.8	AIX 4.3.3
<b>ESL SDLT 160/320 Models</b>									
<b>Direct Attach</b>									
VERITAS NetBackup 4.5	X	X							
VERITAS NetBackup 3.4.3	X	X							
Legato NetWorker 6.1.2	X	X					X		
VERITAS Backup Exec 8.6	X	X			X	X			
CA BrightStor ARCserve 2000	X	X							
CA BrightStor ARCserve 7									
<b>HP/EBS SAN</b>									
HP Omniback 4.x	X	X		X	X				X
HP Data Protector	X	X		X	X				X
VERITAS NetBackup 4.5	X	X	X	X				X	X
VERITAS NetBackup 3.4.3	X	X	X	X				X	X
Legato NetWorker 6.1.2	X	X	X	X			X	X	



### Standard Features

VERITAS Backup Exec 8.6	X	X			X	X			
VERITAS Backup Exec 9.0					X				
CA BrightStor ARCserve 2000	X	X							
* HP-UX commands fbackup\frecover and backups launched using HP-UX Site Area Manager are not supported									

### HP Care Pack Service and Support

#### Hewlett-Packard Installation and Care Pack Information

HP Care Pack Services provides a three-year, limited warranty, fully supported by a worldwide network of resellers and service providers, and also provides hardware technical phone support. In addition, available service offerings include a full range of hardware and software services:

- Installation and start up
- Extended coverage hours and enhanced response times
- System management and performance services

Additional Warranty protection and/or HP Installation packages can be purchased for the ESL9322S2 library products:

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#### Software Product Services

- Stand-alone telephone support
- Rights to a new license
- Media and documentation updates

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#### Hardware Product Services

- Installation services
- On-site maintenance (includes warranty support)
- Response time upgrades during the warranty period
- Post-warranty coverage

For additional hardware installation and maintenance information please refer to the URLs listed below:

<http://h18005.www1.hp.com/services/carepaq/us/hardware/>

<http://h18005.www1.hp.com/services/carepaq/us/install/>

**For EMEA:**

<http://h18005.www1.hp.com/services/carepaq/global/>

or contact your local Global Services Department.

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#### Warranty Upgrade Options

- Response - Upgrade on-site response from next business day to same day 4-hours
- Coverage - Extend hours of coverage from 5 days x 9 hours to 7 days x 24 hours
- Duration - Select duration of coverage for a minimum period of 1 year or multiple years

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#### Installation Services (NA)

For library SKUs (0 to 8 drive units)

163463-002

FM-T6INS-IN

Sample part numbers:

**NOTE:** Certain restrictions and exclusions apply. Consult the Hewlett-Packard Customer Support Center for details.

### *HP Care Pack Service and Support*

<b>EMEA HP Care Pack</b>	3 year, uplift to 5 x 9, Next Day Response	FP-WARPL-36
<b>PS Information Sample</b>	3 year, uplift to 5 x 9, 4-hour Response	FP-PRIOR-36
<b>Part Numbers:</b>	3 year, uplift to 7 x 24, 4-hour Response	FP-PRI24-36
	basic installation Service	FP-INSTA-IN

- HP Care Pack is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.
- HP Care Pack is not available for less than the product's warranty duration.
- HP Care Pack is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer).
- Proof of purchase may be required.

HP Care Pack services are prepaid

Customized Installation Services (including installation of vendor backup software) and contract based support services are available by contacting your local Global Services department

### Related Options

		UPC Code	Part Number
<b>ESL9322S2 Library System</b>	ESL9322S2 222 slot 2 DRV SDLT 160/320	613326517550	293409-B22
	ESL9322S2 222 slot 8 DRV SDLT160/320	613326583678	293409-B28
	ESL9322S2 322 slot 2 DRV SDLT160/320	613326517567	293410-B22
	ESL9322S2 322 slot 8 DRV SDLT160/320	613326583692	293410-B28
<b>Supplied with each Library Unit</b>			
Library unit (pre-configured with drives)			
Documentation kit			
Documentation CD including translations			
Users Guide			
Unpacking and Installation Guide			
Pre-Installation Site Survey			
Diagnostic CD			
Diagnostic Software Guide			
Warranty Card			
Safety Card			
Driver CD			
(1) SDLT 160/320 Media Cartridge			
Bar code labels			
Cleaning Labels			
(2) Keys			
SCSI terminators (1 per drive, installed)			
Diagnostic cable (for PC attach)			
<b>Supplied with each library</b>			
2 Line Cords (IEC 320 C19), US/Canada			
<hr/>			
<b>Power Cord (Pair Required)</b>	ESL9000 POWER CORDS 2X, US/CANADA/MEX*	743172935649	146210-001
	ESL9000 POWER CORDS 2X, SE ASIA/INDIA	743172935625	146210-AR1
	ESL9000 POWER CORDS 2X, CENTRAL EUROPE	743172935632	146210-021
	ESL9000 POWER CORDS 2X, AUS/CHINA/NZL	743172935670	146210-011
	ESL9000 POWER CORDS 2X, SWITZERLAND	743172935656	146210-111
	ESL9000 POWER CORDS 2X, UK/HONG KONG	743172935663	146210-031
	ESL9000 POWER CORDS 2X, ITALY	743172935687	146210-061
	ESL9000 POWER CORDS 2X, DENMARK	743172935694	146210-081
	ESL9000 POWER CORDS 2X, JAPAN	743172935700	146210-291
<b>NOTE:</b> Shipped with all units. Order Local power cords.			
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<b>Drive, capacity, and memory upgrade kits</b>	ESL9000 LVD SDLT 160/320 upgrade drive in hot plug canister	613326517642	293414-B21
	ESL9322S2, slot upgrade 222 TO 322 slots*	613326518946	293588-B21
	ESL9000 5 MB Memory Module for ESL9198 & ESL9326 libraries, (required to support firmware versions 3.00 and later)	613326380215	274673-B21
<b>NOTE:</b> *Serial number of your existing library is required when ordering these capacity upgrade SKUs, please enter the serial number in the comments section of the purchase order, and inform your Secondary Storage Product Manager.			

### Related Options

<b>Media and Bar Code Labels</b>	SDLT Media 5-Pack	720591390273	188527-B21
	SDLT Media 10-Pack	720591390587	188527-B22
	SDLT Media 20-Pack	720591433208	188527-B26
	<b>Supplied with each Power Cord</b>		
	Additional media		
	Additional magazines		
	Bar code labels		

<b>SCSI Cables</b>	Wide/Wide SCSI cable, 5 m	743172633910	328215-001
	Wide/Wide SCSI cable, 10 m	743172633927	328215-002
	Wide/Wide SCSI cable, 15 m (do not order for multiple device per HBA configurations)	743172633934	328215-003
	Wide/Wide SCSI cable, 20 m (do not order for multiple device per HBA configurations)	743172633941	328215-004
	SCSI Cable, VHDCI/Wide, 6 ft	743172660831	341176-B21
	SCSI Cable, VHDCI/Wide, 12 ft	743172660848	341177-B21
	SCSI Cable, VHDCI/Wide, 10 m	720591469108	201160-B21
	SCSI Cable, VHDCI/Wide, 20 m	720591624491	201160-B23

**NOTE:** Check the cable-adapter matrix for tape libraries on:  
<ftp://ftp.compaq.com/pub/products/storageworks/tape-and-optical-storage/adapter-cable-matrix.pdf>

\* Requires 221249-B21 LVD extender kit

<b>SCSI Host Bus Adapter/Hewlett-Packard Fibre Channel to SCSI Router (optional)</b>	<b>ProLiant Controllers</b>		
	64-bit/66 MHz PCI dual channel Wide Ultra3 SCSI adapter	743172876379	129803-B21
	<b>Alpha Controllers</b>		
	Single Channel Ultra LVD Controller		3X-KZPCA-AA
	<b>Network Storage Router (required for SAN configuration)</b>		
	Network Storage Router m2402 (2FC X 4 LVD SCSI)		262653-B21
	Embedded Data Router, ESL9000embedded fibre option e2400 – Base 2 FC X 4 LVD SCSI ports (Includes card cage for installation of embedded router which is required for configuration) (Includes two router cards each with 1 FC X 2 LVD SCSI ports, 4 VHDCI-WIDE SCSI cable, user guide CD, and the ESL9000 cPCI card cage)		262665-B21
	It is recommended that the installation HP Care Pack be ordered with this SKU.		
Embedded Data Router, ESL9000embedded fibre option e2400 – Upgrade 2 FC X 4 LVD SCSI ports (Includes: two 1FC x 2LVD SCSI router cards, four		262664-B21	

**NOTE:** Host Bus adapter for SCSI connectivity from server to tape library in direct SCSI environment Network Storage Router, Embedded FC Router to connect SCSI Library to Fibre Channel Hub/Switch.

<b>LVD Extender Kit</b>	LVD Extender kit (Required for HBA to Library SCSI cable lengths exceeding 10 m)	720591597658	221249-B21
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### Related Options

<b>ESL9000 magazine</b>	ESL9000 UNIVERSAL LOAD PORT magazine (2x4 slot)(fixed)	613326572603	302254-B21
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#### Data Protection Suites for Backup and Restores

##### **CommVault Galaxy**

Phan Kit, CommVault Galaxy	281593-B21
DP Suite, SAN standard	281585-B21
DP Suite, SAN advanced	281588-B21
DP Suite, Network	281582-B21

##### **Additional CommVault Galaxy Suite Descriptions**

Phan Kit, CommVault Galaxy - Media Kit that contains live trial software

DP Suite, SAN standard - Entry level SAN kit that contains:  
 ISV application software for six servers on the SAN  
 Two server clients for backing up over the LAN  
 Each SAN server has a choice of a database agent or open file systems option  
 Support for up to eight shared automated, tape drives

DP Suite, SAN advanced - Data center SAN kit that contains:  
 ISV application software for fourteen servers on the SAN  
 Two server clients for backing up over the LAN  
 Each SAN server has a choice of a database agent or open file systems option  
 Support of up to sixteen shared, automated tape drives

DP Suite, Network - Designed for backing up a single server and server clients over the network using a tape drive, an autoloader or business class automation. Includes choice of one database agent or open file systems option.

##### **CA BrightStor ARCserve**

Phan Kit, CA ARCserve	283915-B21
DP Suite, single server	281576-B21
DP Suite, SAN standard	281583-B21
DP Suite, SAN advanced	281586-B21
DP Suite, Network	281581-B21

##### **Additional CA BrightStor ARCserve Suite Descriptions**

Phan Kit, CA ARCserve - Media Kit that contains live trial software

DP Suite, single server - Designed for backing up a single server, with no server clients, using a single internal or external tape drive.

DP Suite, SAN standard - Entry level SAN kit that contains:  
 ISV application software for six servers on the SAN  
 Two server clients for backing up over the LAN  
 Each SAN server has a choice of a database agent or open file systems option  
 Support for up to eight shared automated, tape drives

DP Suite, SAN advanced - Data center SAN kit that contains:  
 ISV application software for fourteen servers on the SAN  
 Two server clients for backing up over the LAN  
 Each SAN server has a choice of a database agent or open file systems option  
 Support of up to sixteen shared, automated tape drives

DP Suite, Network - Designed for backing up a single server and server clients over the network using a tape drive, an autoloader or business class automation. Includes choice of one database agent or open file systems option.

### Related Options

#### **VERITAS Backup Exec**

Phan Kit, VERITAS Backup Exec	283914-B21
DP Suite, SAN standard	281584-B21
DP Suite, SAN advanced	281587-B21

#### **Additional VERITAS Backup Exec Suite Descriptions**

Phan Kit, VERITAS Backup Exec - Media Kit that contains live trial software

DP Suite, SAN standard - Entry level SAN kit that contains:

ISV application software for six servers on the SAN

Two server clients for backing up over the LAN

Each SAN server has a choice of a database agent or open file systems option

Support for up to eight shared automated, tape drives

DP Suite, SAN advanced - Data center SAN kit that contains:

ISV application software for fourteen servers on the SAN

### Technical Specifications

<b>SCSI Identification</b>	Product ID	ESL9000 Series	
	Vendor ID	HP	
<b>Control Panel</b>	Library and Drive Status Move tape cartridges Load/Unload tape drives Maintenance (drive cleaning, diagnostics) Library Configuration Statistics		
<b>SCSI Interface</b>	Ultra2 SCSI LVD, 68HD Interconnect (External cable length between library and HBA, limited to 10 m without LVD extender, extends up to 25 m when using the LVD extender)		
<b>Form Factor</b>	Free Standing		
<b>Dimensions (H x W x D)</b>	<b>Unit</b>	<b>Packaged</b>	
	Height	75 in/190.5 cm	80 in/203.2 cm
	Width	40 in/101.6 cm	52 in/132.1 cm
	Depth	29 in/73.7 cm	48 in/121.9 cm
<b>Unit Weight</b>	Without data cartridges, 0 drives	1072 lb/487 kg	
	Without data cartridges, 8 drives	1180 lb/536 kg	1362 lb/617.8 kg
	322 data cartridges, 8 drives	1335 lb/606.6 kg	
<b>Performance (native) (16 MB/s per drive)</b>	Minimum configuration	2 Hewlett-Packard SDLT 160/320 drives, native transfer rates up to 115.2 GB/hr	
	Maximum configuration	8 Hewlett-Packard SDLT 160/320 drives, native transfer rates up to 460.8 GB/hr	
<b>Storage Capacity</b>	ESL9322S2 (222 slots) - Supports 222 SDLT cartridges for native capacity up to 35.52 TB native, 71.04 TB compressed (2:1) ESL9322S2 (322 slots) - Supports 322 SDLT cartridges for native capacity up to 51.52 TB native, 103.04 TB compressed (2:1)		
<b>Input/Output Port</b>	2 x 4-slot fixed		
<b>Initialization Time</b>	< 7 minutes		
<b>Cartridge Swap time</b>	33 seconds average		
<b>Cartridge Passthrough time - end to end</b>	78 seconds average		
<b>Swaps</b>	135 swap/hour		
<b>Electrical Specifications</b>	AC Voltage	Auto-range to domestic and international AC voltages AC Voltage Range: 90 to 132 VAC or 180 to 264 VAC, single phase Nominal: 100 to 120 VAC or 220 to 240 VAC Line Frequency Range: 47 to 63Hz AC Receptacle: IEC-320 C19 Type 100-120V/200-240V, 50/60 Hz, 20A/16A (5-20P plug for U.S. and Canada)	
	Power Consumption	1200 VA Maximum	
<b>Acoustic Noise</b>	Noise Power Emission Level	Idle	7.8 bels
		Operating	8.1 bels
<b>Reliability (Library Only)</b>	MTBF	250,000 hours	
	MSBF	2,000,000 load/unload cycles	
<b>Regulatory Compliance</b>	Safety	UL1950, CSA C22.2 950, EN 60950:1992/A11, IEC 60950:1992/A11, DHHS/FDA (US CFR21 part 1040, Class 1 laser)	

### *Technical Specifications*

EMI	EN 60825:1994/A11, FCC Part 15 Class A, CISPR Publication 22 Class A, ICES-003 Class A, VCCI Class 1, SMA AZ/NZS 3548 Class A
EMC	EN6100-3-2, EN50082-1: 1992, EN50022: 1994

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