



XLS Series of Tape Libraries
Site Planning Guide

Document No. 501604 Rev. 07-01-19

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Revision History

Revision	Release Date	Description
A	09-Jun-2006	Initial release
B	26-Mar-2007	Revised to include the XLS-812300
C	05-Sep-2007	Revised to include the XLS-85000
D	29-Jul-2008	Revised to include the XLS-8161100
07-01-19	01-Jul-2019	Address updated

Notices

Qualstar products are covered by one or more of the following patents: 6,271,982; 6,560,061; and 7,181,313. Other patents pending.

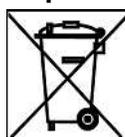
Qualstar equipment is manufactured from new parts, or new and used parts. In some cases, Qualstar equipment may not be new and may have been previously installed. Regardless, Qualstar's warranty terms apply unless the equipment is specifically identified by Qualstar as "used" or "refurbished."

This equipment has been 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 the instruction 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 will be 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.

European Union Directive 89/336/EEC and Standard EN55022 (Electromagnetic Compatibility)

This product has been tested and is certified to be compliant with the Class A provisions of the U.S., Canadian, and European standards for electromagnetic compatibility (EMC).

European Directive on Waste Electrical and Electronic Equipment (WEEE)



Qualstar encourages its customers to use current recycling practices in order to reduce the burden that waste electronic products place on the environment.

If you are retiring a fully functional tape library, you are encouraged to transfer the functional unit to a new user, thereby extending the useful life of the tape library. The manufacture of all products requires the consumption of energy. By extending the life of the tape library, energy is conserved.

In accordance with environmental directives that are being implemented in many countries (refer to the European Directive on Waste Electrical and Electronic Equipment - WEEE), Qualstar provides customers with "[End of Life Instructions](#)" that identify the process for recycling the materials and components that make up a Qualstar tape library.

End of Life Instructions

Tools required

- #1 and #2 Phillips screwdrivers
- T20 Torx head screwdriver
- Hex head (Allen) wrench/driver set
- 1/4-inch hex nut driver

Disassembly procedure

1. Remove the doors.
2. Remove the front panel.
3. Remove the external side panels.
4. Remove the internal subassemblies.

Items recyclable using conventional methods

- **Aluminum:** Front panel, exterior side and rear panels, robotics, cartridge and drive bays, carousel and shroud panels
- **Stainless steel:** Robot guides
- **Steel:** Frames, fasteners
- **Plastic:** Windows, cartridge magazines, tape cassettes
- **Copper:** Internal wiring, motors, SCSI cables
- **Paper:** Manuals

Items requiring special disposal due to lead-based solder

- **Printed circuit boards:** Controller card, miscellaneous small printed circuit boards

Items that may have salvage or resale value

- Tape drives
- EMI line power filter

Reduction of Hazardous Substances (RoHS)

Qualstar is committed to the implementation of RoHS (Restriction of the use of certain hazardous substances in electrical and electronic equipment) in accordance with the European Directive. The compliance date is July 1, 2006, at which time Qualstar will certify that its tape library products are compliant with the RoHS standard.

Qualstar tape libraries are classified as “Information Technology Storage Array Systems” for which the RoHS Directive provides an exemption for lead solder until the year 2010. Until Qualstar replaces lead-based solder with lead-free solder, affected subassemblies must be disposed of appropriately.

Technical Support

The best source for service-related information is your system reseller. Alternately, you can reach the Qualstar Technical Support Department at:

Qualstar Corporation

1267 Flynn Road
Camarillo, CA 93012

Monday - Friday 7:00 A.M. to 4:00 P.M. PST

Phone: (805) 416-7055
Toll Free: (877) 886-2758

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1

About This Manual

This document provides information needed to prepare a site for the Qualstar XLS Library. It includes the following information:

- Considerations for unloading and moving the library. For more information, see [Chapter 2, “Unloading and Moving the Library.”](#)
- Considerations for installing the library. For more information, see [Chapter 3, “Installing the Library.”](#)
- A check list of the components, options, and accessories needed to install an XLS library. For more information, see [Chapter 4, “Installation Check List.”](#)

1.1 About the XLS

The Qualstar XLS family of enterprise-class tape libraries is designed to accommodate customer storage needs now and in the future. Four XLS models are currently available.

1.1.1 XLS-8161100

Shown in [Figure 1-1](#), the XLS-8161100 accommodates up to 16 tape drives, up to 1,066 cartridges, and up to four, 10-slot I/O ports. As an option, one or two Media Expansion Modules (MEMs) can be installed on the sides of the XLS-8161100. See [Section 1.1.5 on page 1-6](#) for more information.

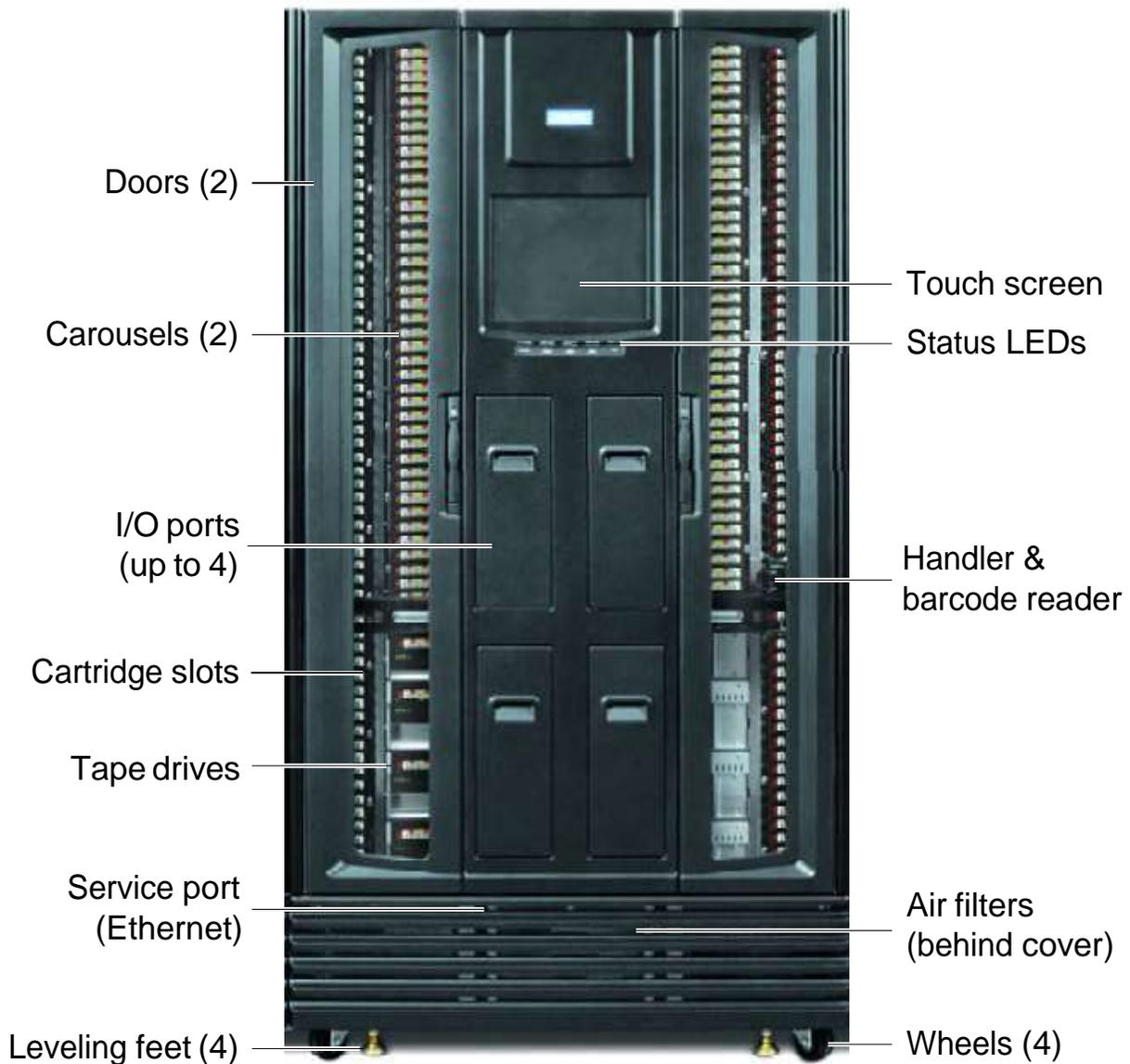


Figure 1-1 Front view of the XLS-8161100

1.1.2 XLS-832700

Shown in [Figure 1-2](#), the XLS-832700 accommodates up to 32 tape drives, up to 655 cartridges, and up to four, 10-slot I/O ports. As an option, one or two Media Expansion Modules (MEMs) can be installed on the sides of the XLS-832700. See [Section 1.1.5 on page 1-6](#) for more information.

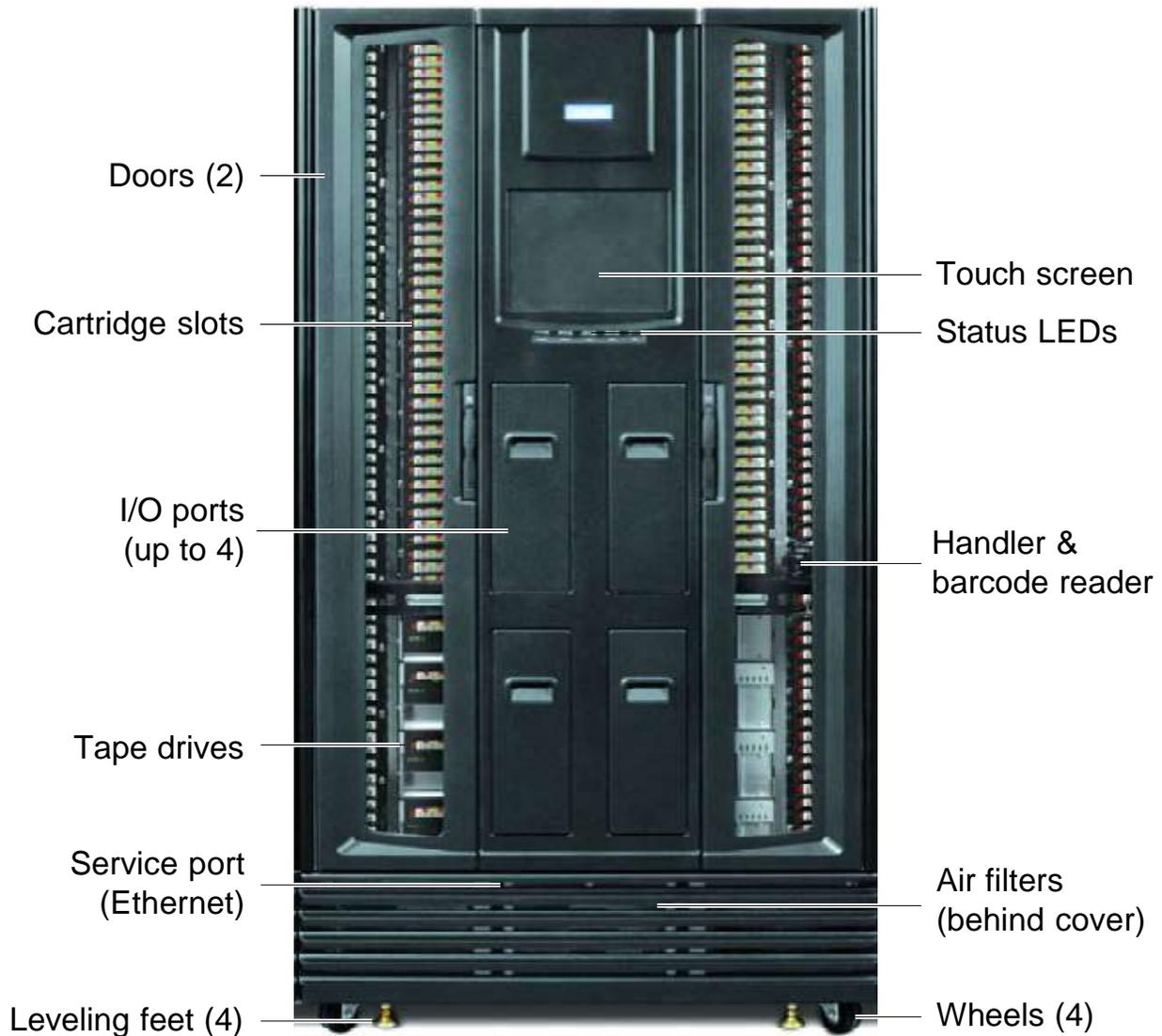


Figure 1-2 Front view of the XLS-832700

1.1.3 XLS-820500

Shown in [Figure 1-3](#), the XLS-820500 accommodates up to 20 tape drives, up to 465 cartridges, and up to four, 10-slot I/O ports. As an option, one or two Media Expansion Modules (MEMs) can be installed on the sides of the XLS-820500. See [Section 1.1.5 on page 1-6](#) for more information.

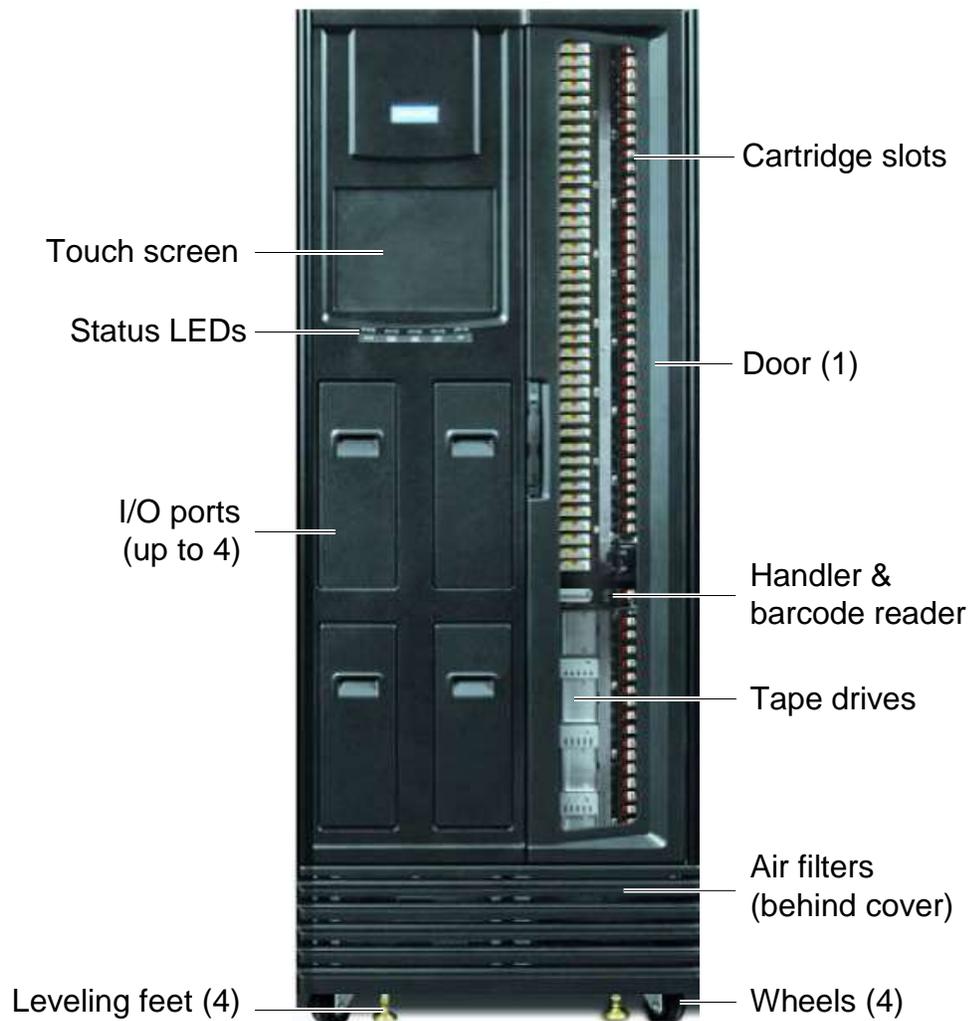


Figure 1-3 Front view of the XLS-820500

1.1.4 XLS-812300

Shown in [Figure 1-4](#), the XLS-812300 accommodates up to 12 tape drives, up to 295 cartridges, and up to two, 10-slot I/O ports. As an option, one or two expansion pods can be installed on the sides of the library, with each expansion pod providing 120 additional cartridge slots. For greater capacity one or two XLS-85000 Media Expansion Modules (MEMs) can be installed on the sides of the XLS-812300. See [Section 1.1.5 on page 1-6](#) for more information.

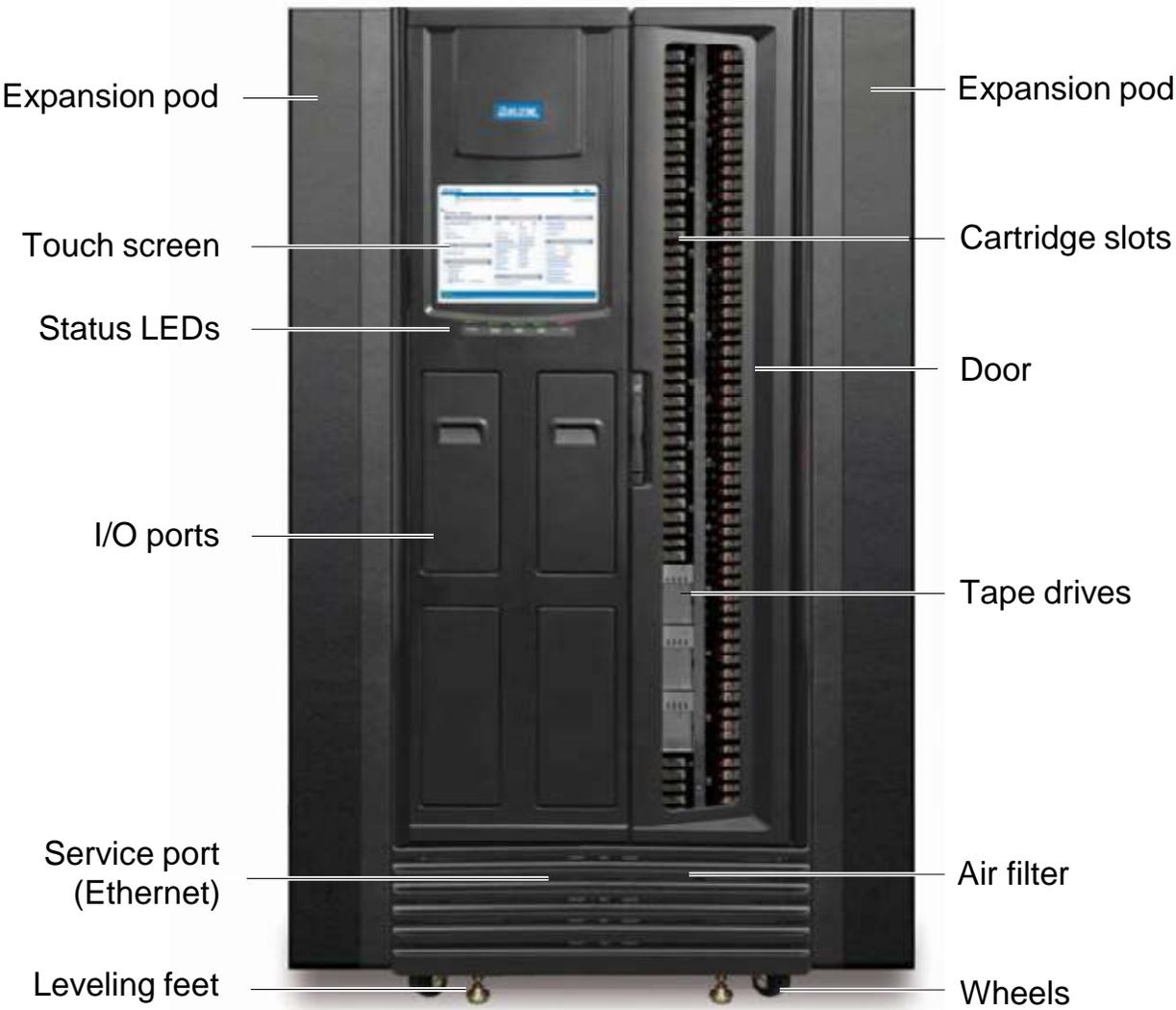


Figure 1-4 Front view of the XLS-812300 with two expansion pods

1.1.5 Media Expansion Modules (MEMs)

Shown in [Figure 1-5](#) and [Figure 1-6 on page 1-7](#), the Media Expansion Modules (MEMs) include a rotating motor-driven carousel containing cartridge slots. The XLS-89000 can accommodate 1,075 cartridges, while the XLS-85000 can store 535 cartridges. The XLS-8161100, XLS-832700 and the XLS-820500 can be expanded by adding one or two of either the XLS-89000 or XLS-85000 MEMs while the XLS-812300 may be expanded by adding one or two of the XLS-85000 MEMs. [Figure 1-7 on page 1-8](#) shows two MEMs attached to either side of the XLS-832700.

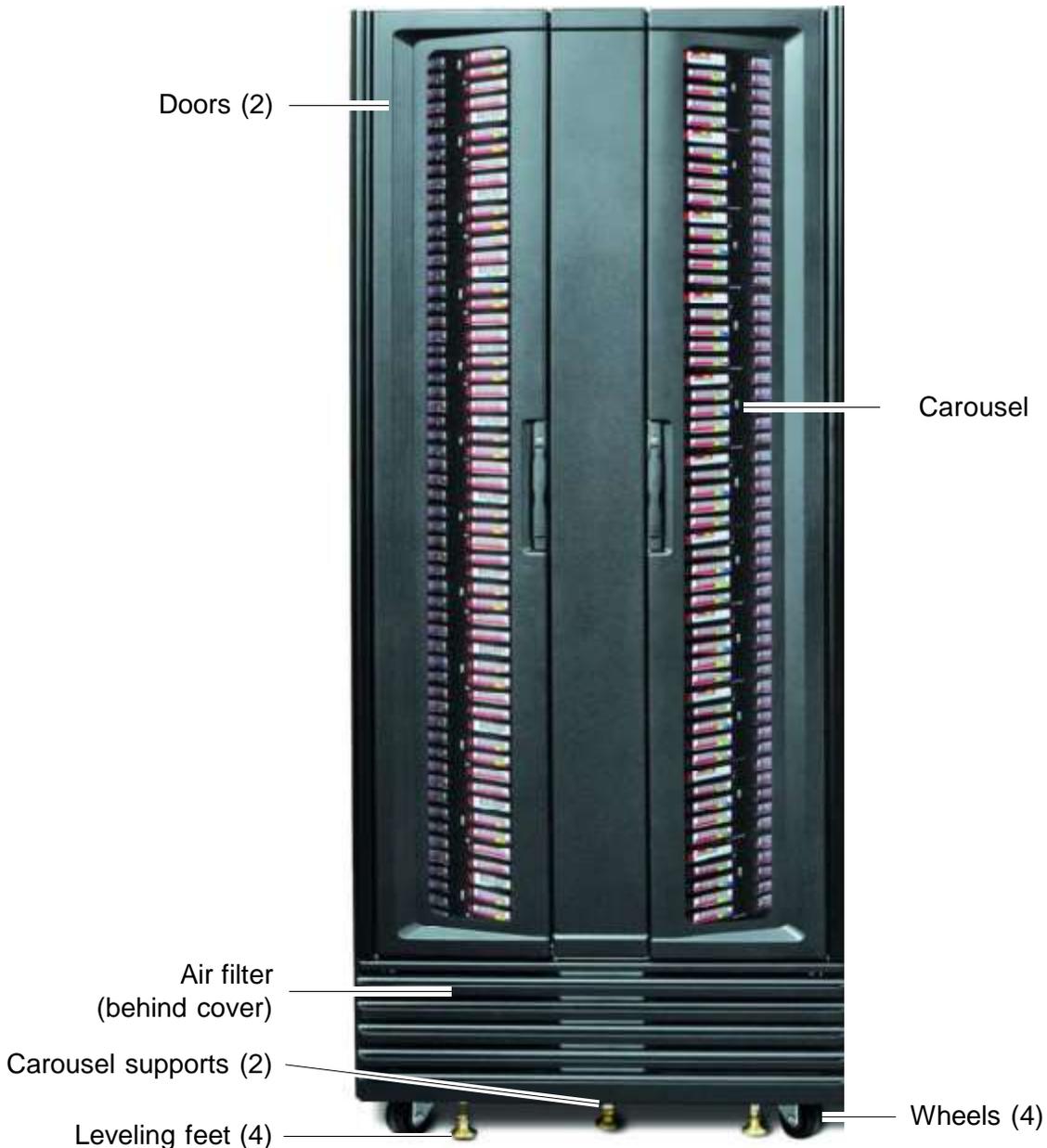


Figure 1-5 Front view of the XLS-89000 Media Expansion Module (MEM)

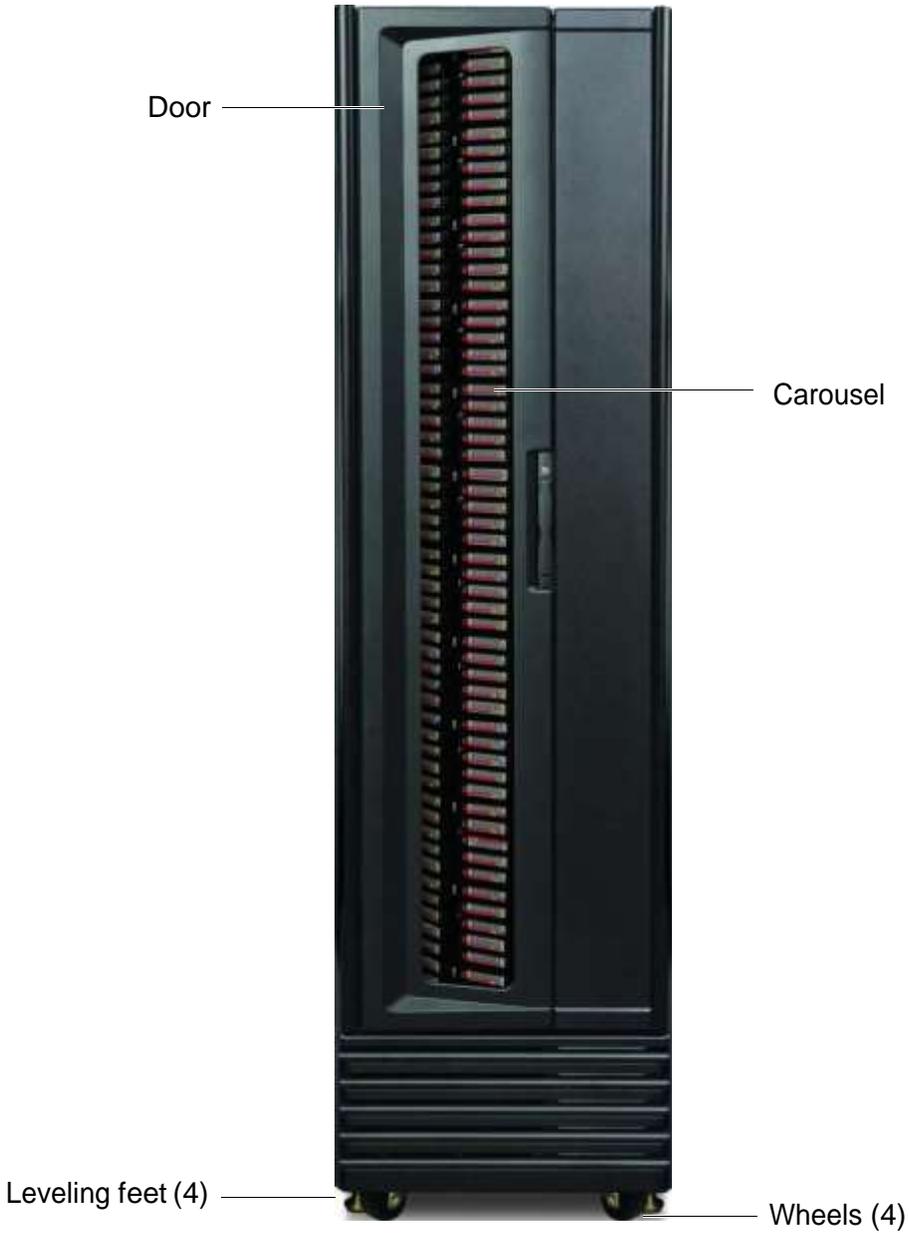


Figure 1-6 Front view of the XLS-85000 Media Expansion Module (MEM)



Figure 1-7 Two XLS-89000 MEMs attached to the XLS-832700

2 Unloading and Moving the Library

Before scheduling delivery of the library, carefully consider the following:

- How the library—including the base library unit, any Media Expansion Modules (MEMs), and any expansion pods—will be unloaded from the truck. See [Section 2.1](#).
- How the equipment will be moved within the facility to its final location. See [Section 2.2](#).

2.1 Unloading the Library

The XLS is shipped on pallets and delivered by truck. Before scheduling delivery of the library, consider which of these situations apply:

- **Loading dock available:** If a loading dock is available, ensure that it has uniform dimensions and that it is of the appropriate size to accommodate the transportation company's truck.
- **Loading dock not available:** If no loading dock is available, you may need to specify that the truck be equipped with a lift gate or ramp to unload the equipment to ground level, where it can be removed from the pallet and moved on its casters.
- **Difficult entry to building:** If the access to the building is especially difficult, you may need to hire a rigging company with material handling equipment to unload the equipment and move it into the facility.

2.2 Moving the Library

Both the base library unit and the MEM are equipped with casters so they can be rolled on smooth, interior floors. Avoid rolling the equipment over rough surfaces or cracks. Use light plywood or a similar material to cover uneven surfaces.

In addition, since the equipment is too heavy to be lifted manually, consider constructing temporary ramps or bridges over steps, large cracks, or expansion joints that are too wide for the casters.

If a library or MEM is to be moved to a different location, it **must** be repacked on the pallet, using the packaging material that it was originally shipped with to avoid damage to the equipment. If the pallet or original packaging material is not available, please contact Qualstar Corporation to order replacements and receive instruction on the repacking procedure.

2.2.1 Door Clearance

Be sure to check all doors, corridors, and elevators along the route for adequate clearance. Confirm that the door frames are square and that sides are parallel. The unpacked dimensions are:

8161100: 44.6 x 35.7 inches (114 x 91 cm)

832700: 44.6 x 34.8 inches (114 x 89 cm)

820500: 34.6 x 34.8 inches (89 x 89 cm)

812300: 34.6 x 34.8 inches (89 x 89 cm). With one POD attached: 42.6 x 34.8 inches (109 x 89 cm). With two PODs attached: 50.5 x 34.8 inches (129 x 89 cm)

89000 MEM1: 34.8 x 34.8 inches (89 x 89 cm)

85000 MEM2: 22.4 x 34.8 inches (57 x 89 cm)

All units are 78 inches (199 cm) tall..

Important: While still packed in its shipping container a module can be as large as 49 inches (125 cm) wide by 67 inches (170 cm) deep and 89 inches (226 cm) tall. This may make it difficult to maneuver the equipment into its desired location while it is still packed.

The optional 8U auxiliary equipment rack and its mounting hardware should be installed after the XLS is in place.

3

Installing the Library

Ensure that the proposed installation location meets the requirements for the following:

- Floor space, floor loading, and service access requirements. See [Section 3.1](#).
- Environmental specifications. See [Section 3.2 on page 3-18](#).
- Power. See [Section 3.3 on page 3-18](#).
- Cooling. See [Section 3.4 on page 3-21](#).

3.1 Floor Space and Floor Loading

This section lists the floor space, floor loading, and service access requirements for the following hardware:

- XLS-8161100. See [Section 3.1.1 on page 3-2](#)
- XLS-832700. See [Section 3.1.2 on page 3-5](#).
- XLS-820500. See [Section 3.1.3 on page 3-8](#).
- XLS-812300, including any expansion pods. See [Section 3.1.4 on page 3-11](#).
- XLS-89000 Media Expansion Module (MEM). See [Section 3.1.5 on page 3-13](#).
- XLS-85000 Media Expansion Module (MEM). See [Section 3.1.5 on page 3-13](#).

Before moving the XLS to its final destination, ensure that there is adequate floor space available and that the floor is capable of holding the equipment's weight.

Important: Be sure to leave adequate space behind the library and any attached MEMs to allow for service access to the following components:

- Power/PC bay (includes the power switch and connector, power supplies, battery module, system controller components, and cooling fans)
- Tape drives
- Any equipment mounted in the optional equipment rack

When extended, the power/PC bay requires 12 inches (31 cm) of space.

3.1.1 XLS-8161100

This section provides information about the dimensions and floor space requirements of the XLS-8161100.

XLS-8161100 Dimensions

[Figure 3-1](#) shows the dimensions of the XLS-8161100 base unit in inches and centimeters.

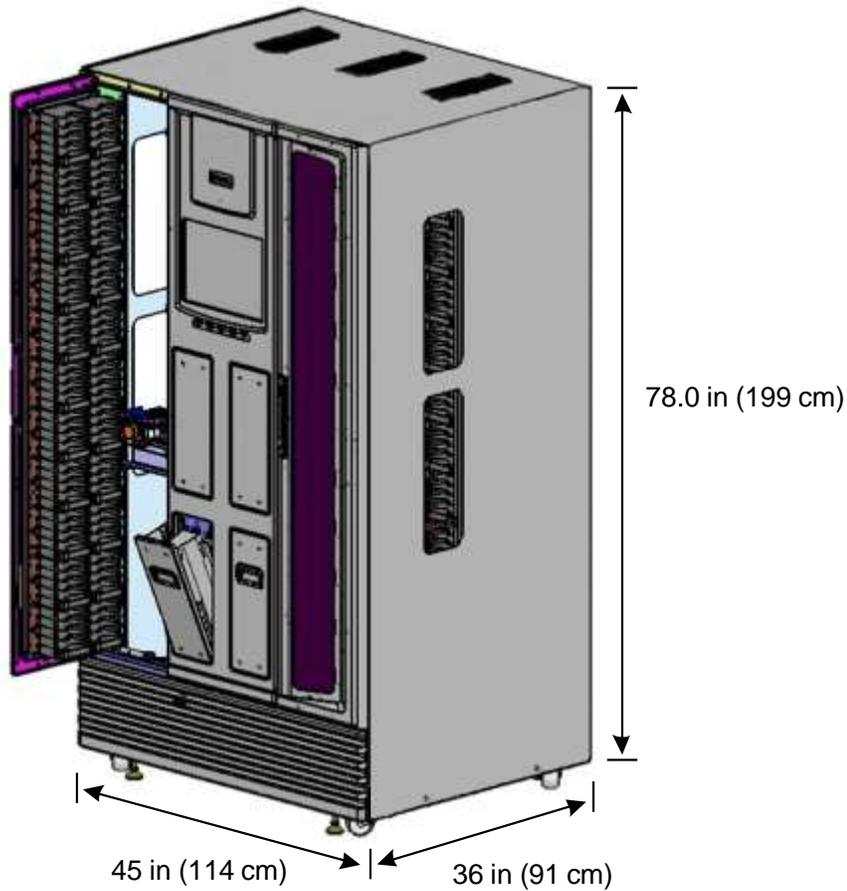


Figure 3-1 External dimensions of the XLS-8161100

XLS-8161100 Floor Space

[Table 3-1](#) lists the amount of floor space required to install the XLS-8161100. The aisle space calculations include an aisle of 24 inches (61 cm) on the front or back of the equipment.

LRMs	MEMs			Cabinets only		Cabinets with 24" aisle		
	Quantity	XLS-89000	XLS-85000	Sq. feet	Sq. meters	Sq. feet	Sq. meters	
1	0			11	1	19	2	
	1	1		20	2	33	3	
			1		17	2	20	2
	2	2		28	3	47	4	
			2		22	2	29	3
		1	1		25	3	34	3

Table 3-1 Floor space requirements for the XLS-8161100 (see [Figure 3-2 on page 3-4](#))

XLS-8161100 Weight and Floor Loading

[Table 3-2](#) shows the weight and maximum floor loading for the XLS-8161100.

Unit	Tape drives	Cartridges	Net weight empty (lbs / kg)	Net weight loaded (lbs / kg)	Floor loading (lbs/ft ² / kg/m ²)
LRM	4	1066	1011 / 459	1550 / 703	144 / 701
LRM	16	976	1011 / 459	1634 / 741	151 / 739
89000 MEM	—	1075	519 / 235	1057 / 479	125 / 614
85000 MEM	—	535	420 / 191	687 / 312	127 / 621

Table 3-2 Weight and maximum floor loading for the XLS-8161100

Service Access Requirements for the XLS-8161100

[Figure 3-2](#) shows the service access requirements for the XLS-8161100, assuming that both doors are open and the power/PC bay has been slid all the way out.

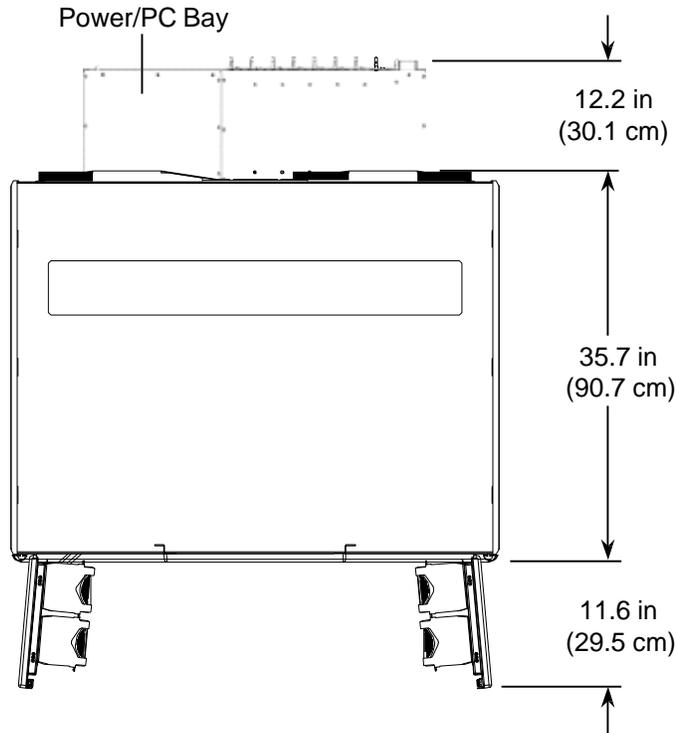


Figure 3-2 Service access requirements for the XLS-8161100

3.1.2 XLS-832700

This section provides information about the dimensions and floor space requirements of the XLS-832700.

XLS-832700 Dimensions

[Figure 3-3](#) shows the dimensions of the XLS-832700 base unit in inches and centimeters.

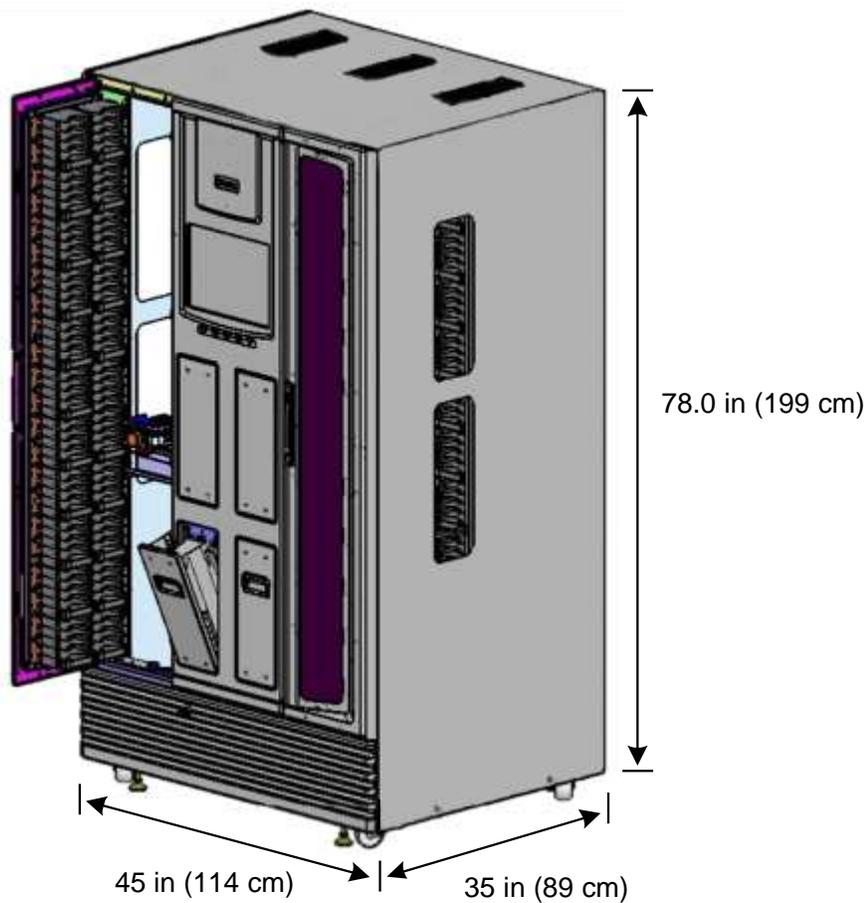


Figure 3-3 External dimensions of the XLS-832700

XLS-832700 Floor Space

[Table 3-3](#) lists the amount of floor space required to install the XLS-832700. The aisle space calculations include an aisle of 24 inches (61 cm) on the front or back of the equipmen.

LRMs	MEMs			Cabinets only		Cabinets with 24" aisle		
	Quantity	XLS-89000	XLS-85000	Sq. feet	Sq. meters	Sq. feet	Sq. meters	
1	0			11	1	19	2	
	1	1		20	2	33	3	
			1		17	2	20	2
	2	2		28	3	47	4	
			2		22	2	29	3
		1	1		25	3	34	3

Table 3-3 Floor space requirements for the XLS-832700 (see [Figure 3-4 on page 3-7](#))

XLS-832700 Weight and Floor Loading

[Table 3-4](#) shows the weight and maximum floor loading for the XLS-832700.

Unit	Tape drives	Cartridges	Net weight empty (lbs / kg)	Net weight loaded (lbs / kg)	Floor loading (lbs/ft ² / kg/m ²)
LRM	4	685	800 / 363	1193 / 541	111 / 539
LRM	32	475	800 / 363	1437 / 652	133 / 650
89000 MEM	—	1075	519 / 235	1057 / 479	125 / 614
85000 MEM	—	535	420 / 191	687 / 312	127 / 621

Table 3-4 Weight and maximum floor loading for the XLS-832700

Service Access Requirements for the XLS-832700

[Figure 3-4](#) shows the service access requirements for the XLS-832700, assuming that both doors are open and the power/PC bay has been slid all the way out.

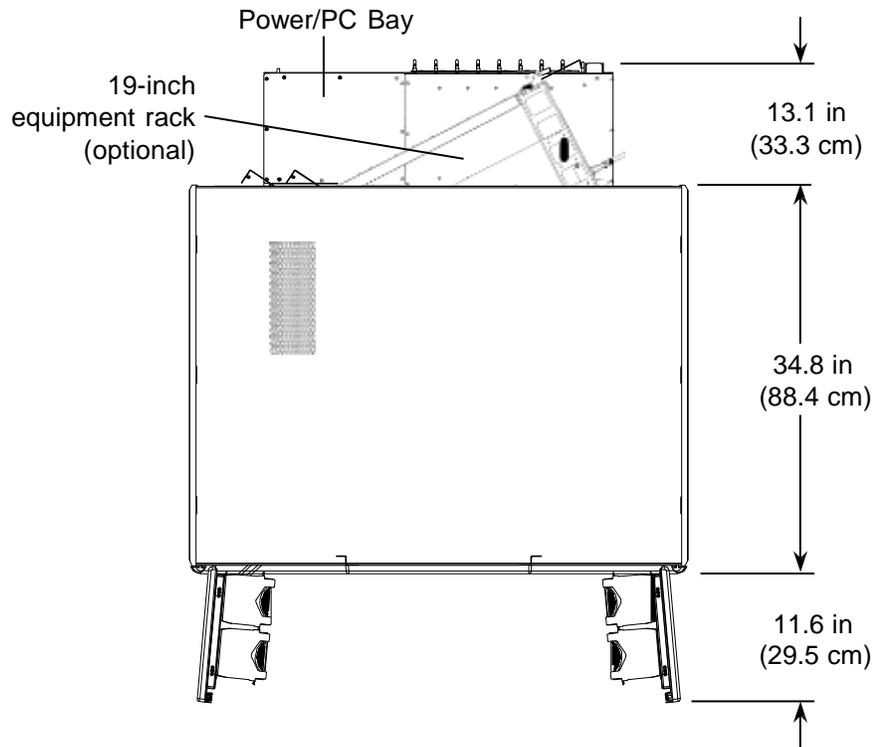


Figure 3-4 Service access requirements for the XLS-832700

3.1.3 XLS-820500

This section provides information about the dimensions and floor space requirements of the XLS-820500.

XLS-820500 Dimensions

[Figure 3-5](#) shows the dimensions of the XLS-820500 base unit in inches and centimeters.

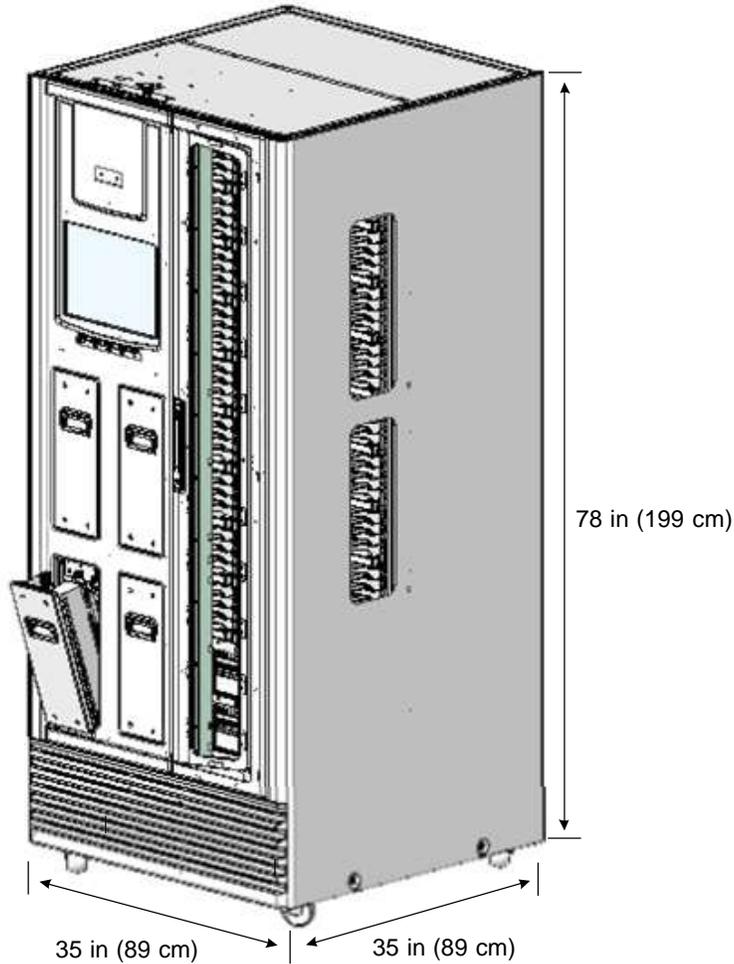


Figure 3-5 External dimensions of the XLS-820500

XLS-820500 Floor Space

[Table 3-5](#) lists the amount of floor space required to install the XLS-820500. The aisle space calculations include an aisle of 24 inches (61 cm) on the front or back of the equipment

LRMs	MEMs			Cabinets only		Cabinets with 24" aisle		
	Quantity	XLS-89000	XLS-85000	Sq. feet	Sq. meters	Sq. feet	Sq. meters	
1	0			9	1	15	2	
	1	1		17	2	29	3	
			1		14	2	18	2
	2	2			26	3	43	4
			2		20	2	27	3
		1	1		23	3	32	3

Table 3-5 Floor space requirements for the XLS-820500 (see [Figure 3-6 on page 3-10](#))

XLS-820500 Floor Loading

[Table 3-6](#) shows the weight and maximum floor loading for the XLS-820500.

Unit	Tape drives	Cartridges	Net weight empty (lbs / kg)	Net weight loaded (lbs / kg)	Floor loading (lbs/ft ² / kg/m ²)
LRM	4	465	720 / 327	1003 / 455	119 / 583
LRM	20	345	720 / 327	1143 / 519	136 / 664
89000 MEM	—	1075	519 / 235	1057 / 479	125 / 614
85000 MEM	—	535	420 / 191	687 / 312	127 / 621

Table 3-6 Weight and maximum floor loading for the XLS-820500

Service Access Requirements for the XLS-820500

[Figure 3-6](#) shows the service access requirements for the XLS-820500, assuming that the door is open and the power/PC bay has been slid all the way out.

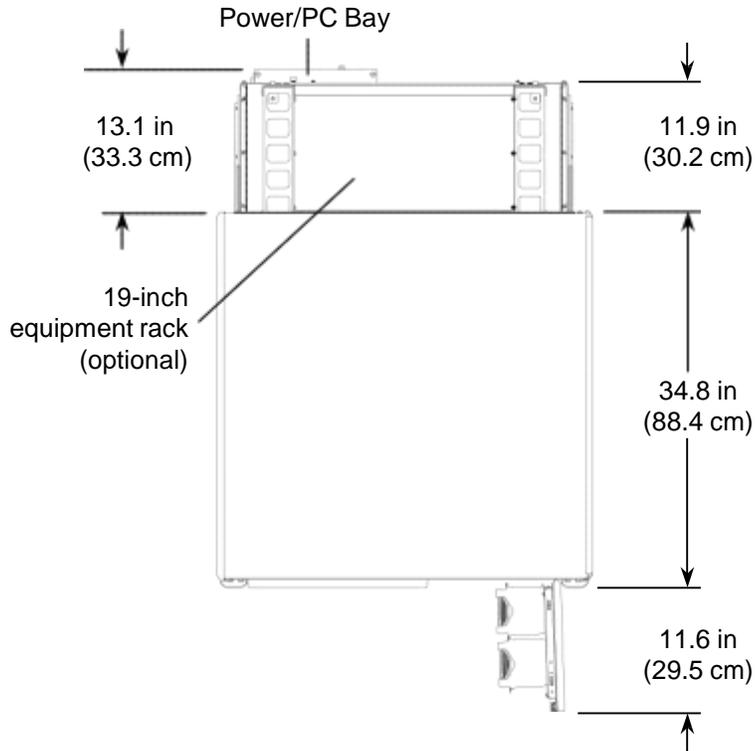


Figure 3-6 Service access requirements for the XLS-820500

3.1.4 XLS-812300

This section provides information about the dimensions and floor space requirements of the XLS-812300, including the optional expansion pods or XL-850000 MEMs.

XLS-812300 Dimensions

[Figure 3-7](#) shows the dimensions of the XLS-812300 base unit in inches and centimeters.

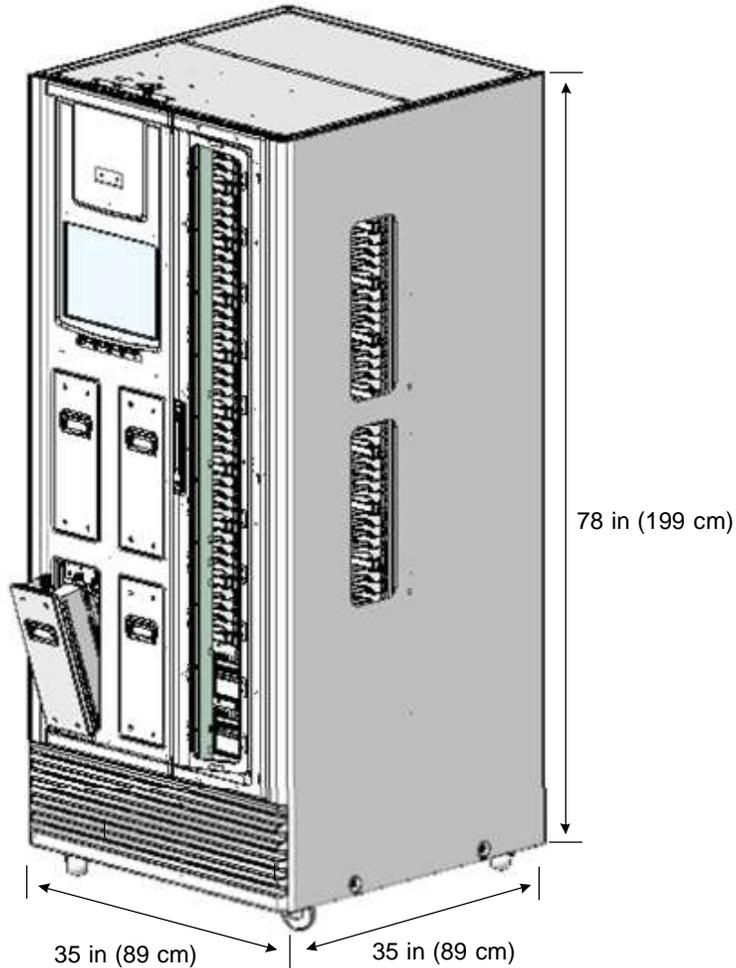


Figure 3-7 External dimensions of the XLS-812300

XLS-812300 Floor Space

[Table 3-7](#) lists the amount of floor space required to install the XLS-812300. The aisle space calculations include an aisle of 24 inches (61 cm) on the front or back of the equipment..

Number of units			Cabinets only		Cabinets with 24-inch aisle	
LRMs	Pods	XL-85000M EMs	Sq. feet	Sq. meters	Sq. feet	Sq. meters
1	0		9	1	14.2	1.3
	2		17	1.6	20.6	1.9
		1	14	2	18	2
		2	20	2	27	3

Table 3-7 Floor space requirements for the XLS-812300 (see [Figure 3-8 on page 3-13](#))

XLS-812300 Floor Loading

[Table 3-8](#) shows the weight and maximum floor loading for the XLS-812300, assuming that expansion pods are installed on both the left and right sides.

Unit	Tape drives	Cartridges	Net weight empty (lbs / kg)	Net weight loaded (lbs / kg)	Floor loading (lbs/ft ² / kg/m ²)
LRM	4	295	720 / 327	898 / 407	107 / 532
LRM	12	535	720 / 327	1162 / 527	138 / 675
85000 MEM	—	535	420 / 191	687 / 312	127 / 621

Table 3-8 Weight and maximum floor loading for the XLS-812300

Site Planning for Expansion Pods

The XLS-812300 can be expanded by adding one or two expansion pods. If you plan to install expansion pods (whether during the initial installation or in the future), consider the recommended installation order:

1. Install the base unit.
2. Install the expansion pod on the **right** side of the base.
3. Install the expansion pod on the **left** side of the base.

Service Access Requirements for the XLS-812300

[Figure 3-8](#) shows the service access requirements for an XLS-812300, assuming that two expansion pods are installed and that power/PC bay is slid all the way out.

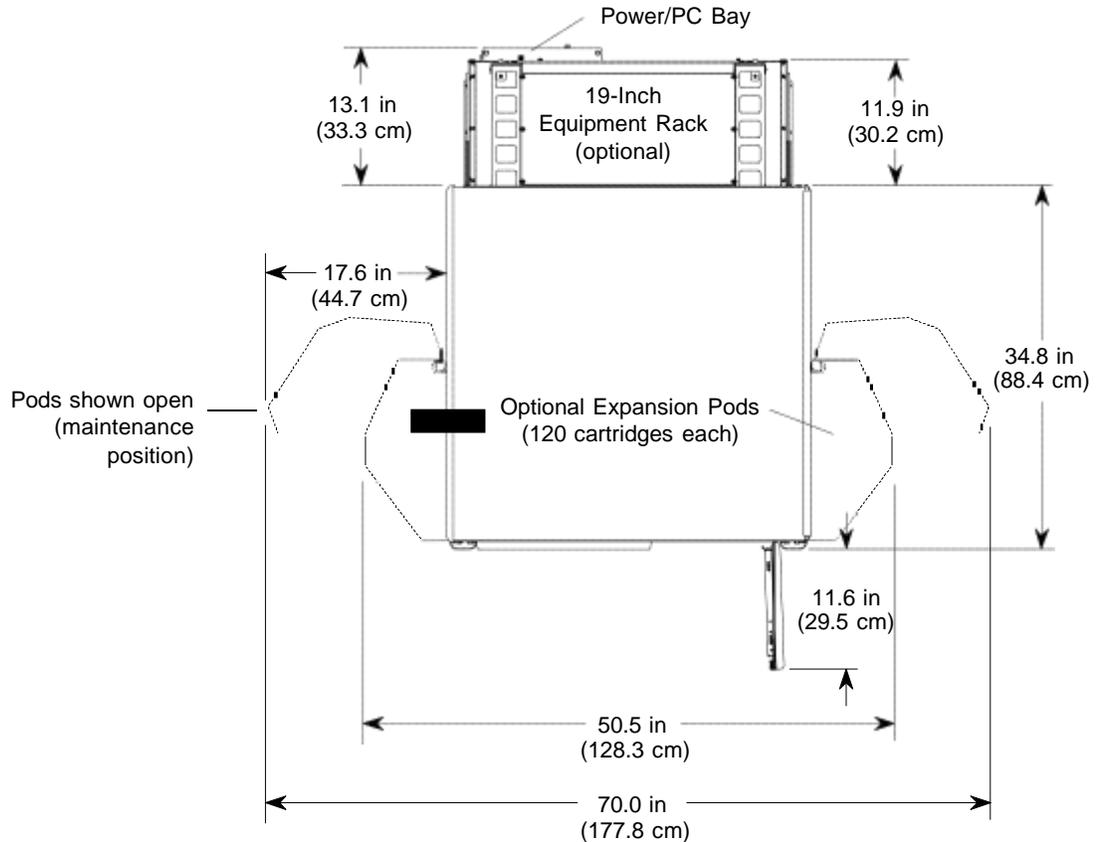


Figure 3-8 Service access requirements for the XLS-812300, including expansion pods

3.1.5 Media Expansion Modules (MEMs)

All LRMs can be expanded by adding one or two MEMs on either side. The XLS-89000 holds an additional 1,075 cartridges, while the XLS-85000 contains 535 cartridges. If you plan to install MEMs (whether during the initial installation or in the future), consider the recommended installation order:

1. Install the base unit.
2. Install the MEM on the **right** side of the base.
3. Install the MEM on the **left** side of the base.

MEM Dimensions

[Figure 3-9](#) shows the dimensions of the XLS-89000 MEM in inches and centimeters.

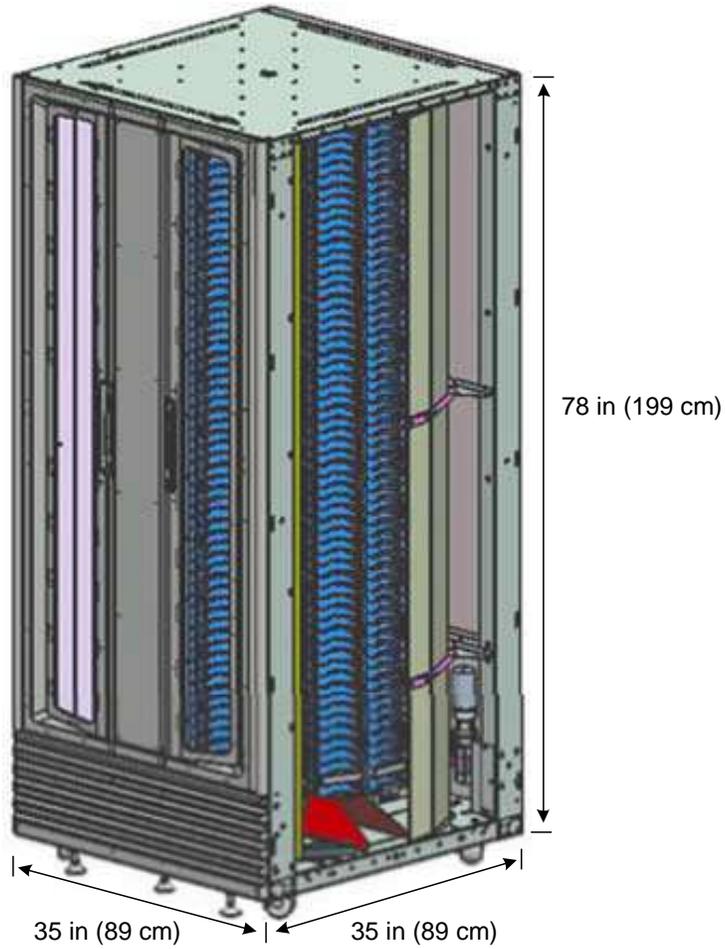


Figure 3-9 External dimensions of the XLS-89000 MEM

[Figure 3-10](#) shows the dimensions of the XLS-85000 MEM in inches and centimeters.

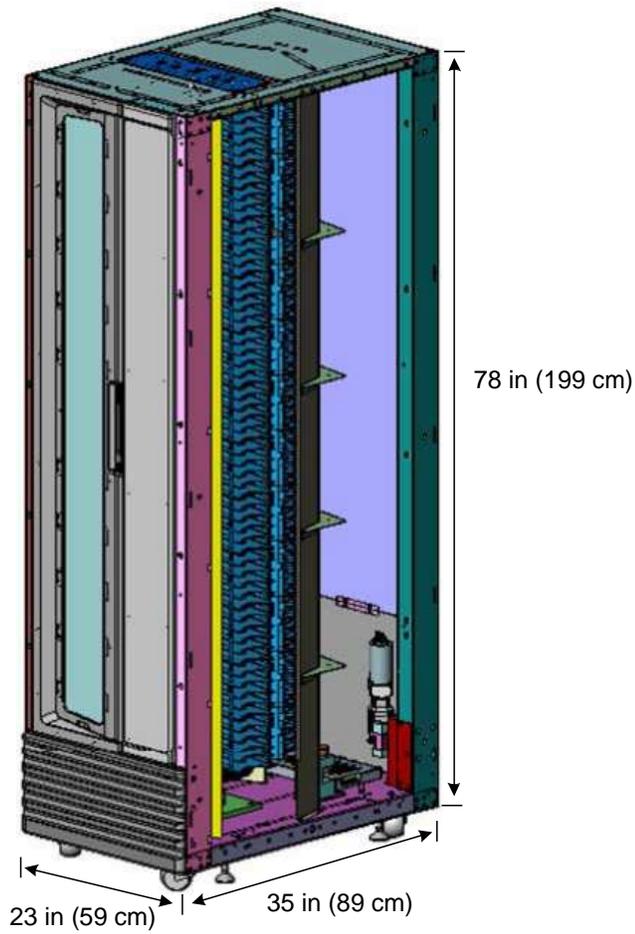


Figure 3-10 External dimensions of the XLS-85000 MEM

Service Access Requirements for a MEM

[Figure 3-11](#) shows the service access requirements for a XLS-89000 MEM, assuming that both doors are open.

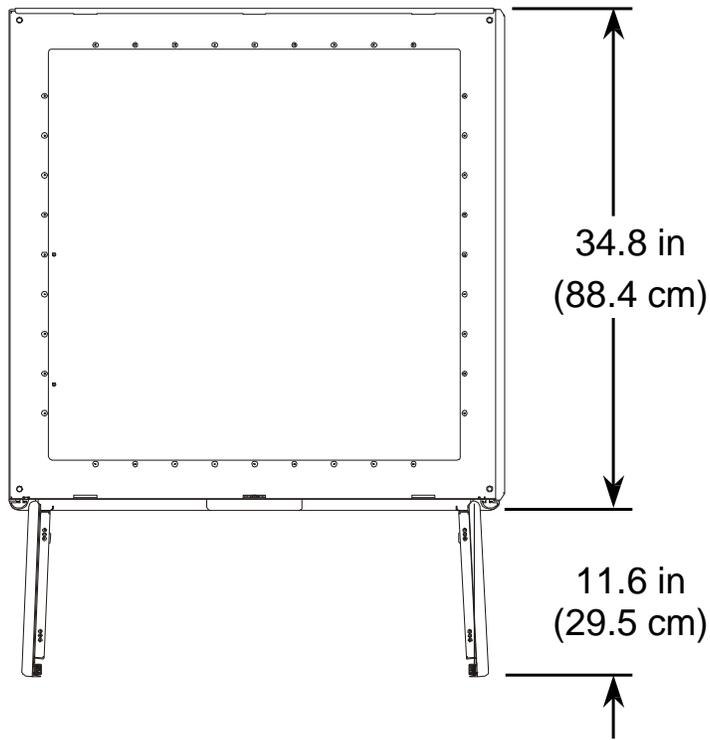


Figure 3-11 Service access requirements for a XLS-89000 MEM

[Figure 3-12](#) shows the service access requirements for a XLS-85000 MEM, assuming that the door is open

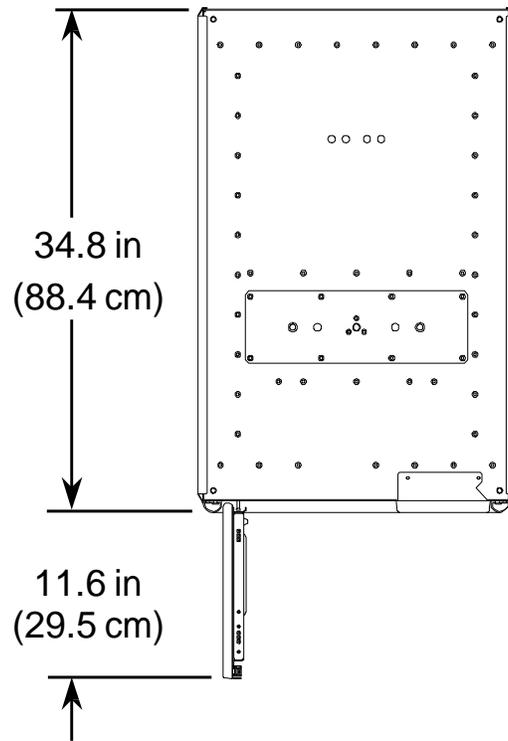


Figure 3-12 Service access requirements for a XLS-85000 MEM

3.2 Environmental Specifications

Before installing the XLS, confirm that the intended location conforms to the environmental specifications listed in [Table 3-9](#).

Parameter	Operating	Non-operating
Ambient temperature	+5°C to +32°C (+41°F to +90°F)	-20°C to +60°C (-4°F to +140°F)
Temperature gradient (maximum)	1°C/minute, 10°C/hour (2°F/minute, 18°F/hour)	1°C/minute, 20°C/hour (2°F/minute, +36°F/hour)
Relative humidity (non-condensing)	20% to 80%	10% to 90%
Wet bulb temperature	26°C (79°F) maximum	29°C (84°F) maximum
Altitude	-1000 to +10,000 feet -304.8 to +3,048 meters	-1,000 to +40,000 feet -304.8 to +12,192 meters

Table 3-9 Environmental specifications

CAUTION

To prevent interference with the optical barcode reader, light curtain sensors, and cartridge present sensors, do not install the XLS in areas exposed to direct sunlight.

3.3 Power Requirements

The XLS operates from the single-phase alternating current power sources (mains) shown in [Table 3-10](#).

Rated Line Voltage	Maximum Operating Line Voltage	Minimum Operating Line Voltage	Line Frequency Range
100–240 VAC	264 VAC	90 VAC	48–62 Hz

Table 3-10 XLS mains requirements

The base library includes a 20-amp switch/circuit breaker. (Power is connected to the base library only; the MEM cabinets get their power from an adjacent base library.) Other than selecting the appropriate AC power cord (see [Section 3.3.1 on page 3-19](#)), the XLS requires no changes to operate from any input voltage within the rated line voltage.

3.3.1 Power Cords

The XLS end of all non redundant power input module power cords is terminated in a mating 20-amp, 3-pin locking connector. [Table 3-11](#) lists the detachable six-foot (or two-meter) power cords available.

Country	Volts/Amps	Qualstar Part Number	Power Cord Description
North America and Japan	100–125V 15A	664-0101-9	Three-conductor 14 AWG SJT PVC-jacketed cord terminated with a NEMA 5-15P type plug
North America	100–125V 20A	664-0104-3	Three-conductor 12 AWG SJT PVC-jacketed cord terminated with a NEMA 5-20P type plug
North America	220–240V 20A	664-0102-7	UL listed and CSA certified three-conductor 14 AWG SJT PVC-jacketed cord terminated with a locking NEMA L6-20P type locking plug
Other	230–240V 16A	664-0103-5	Harmonized three-conductor HO5VV F3G 1.5mm PVC-jacketed cord terminated with the European CEE7 Standard VII type plug
United Kingdom	200-240V 13A	664-0105-0	Three-conductor 1.5mm PVC-jacketed cord terminated with the United Kingdom BS 1363A standard type plug
North America	100-125V 20A	664-0106-8	UL listed and CSA certified three-conductor 12 AWG SJT PVC-jacketed cord terminated with a locking NEMA L5-20P type locking plug

Table 3-11 Available standard XLS power cords

XLS models equipped with the redundant power input module come supplied with two power cords. The cords are three-conductor 14 AWG SJT PVC-jacketed cords terminated with an IEC 60320 C-19 type connector at the XLS end. [Table 3-12](#) lists the power cords that are available for redundant power input module equipped libraries.

Country	Volts/Amps	Qualstar Part Number	Power Cord Description
North America and Japan	100–125V 15A	664-0107-6	PVC-jacketed cord terminated with a NEMA 5-15P type plug
Other	230–240V 16A	664-0200-9	PVC-jacketed cord terminated with the European CEE7 Standard VII type plug
United Kingdom	200-240V 13A	664-0201-7	PVC-jacketed cord terminated with the United Kingdom BS 1363A standard type plug

Table 3-12 Available redeudent power input module equipped XLS power cords

3.3.2 Power Consumption

Power consumption varies with the number of tape drives installed, the number of tape drives operating simultaneously, and the occurrence of robotic motion. [Table 3-13](#) lists the power requirements for typical system configurations as well as for a single tape drive or MEM. You can use these number to determine the actual power needs of any system configuration..

System configuration	Consumption	
	watts	BTUs/hr
1 base, 4 tape drives	525	1,793
1 base, 16 tape drives	1,102	3,764
1 base, 32 tape drives, 1 MEM	2,081	7,106
1 base, 8 tape drives, 2 MEMs	1,138	3,887
1 base, 32 tape drives, 2 MEMs	2,291	7,824
Each tape drive adds	48	164
Each MEM adds	210	717

Table 3-13 Approximate XLS power consumption based on LTO tape drives

The current drawn from the power line (mains) is equal to the watts indicated in [Table 3-13](#) divided by the AC voltage available.

If your system has a large number of tape drives, connect it to a 208- to 240-volt source to reduce the peak AC input current. The integral circuit breaker will trip at 20 amps. In general, Qualstar recommends 220-volt input power. Using a 220-volt source will prevent input power from being an issue during upgrades.

An uninterruptible power source (UPS) is strongly recommended. Be sure the UPS is rated to handle the peak power loads listed in [Table 3-13 on page 3-20](#).

CAUTION

If equipment will be installed in the optional auxiliary equipment rack, it must be connected to a separate power circuit.

3.4 Cooling Requirements

The XLS draws fresh cooling air through the grille and air filters on the front of the library and exhausts warm air out the back. The BTUs/hour figures in [Table 3-13 on page 3-20](#), above, indicate the air conditioning capacity needed to remove the heat generated by example XLS systems.

Notes:

4 Installation Check List

This chapter provides a check list of the components, options, and accessories needed to install an XLS tape library. For more information, refer to the *XLS Library Installation Manual*.

Important: Before starting the installation, obtain any planning diagrams or documents created when determining what XLS equipment to order. You can refer to these documents as you install the tape drives and cartridges, connect the SCSI or Fibre Channel cables, and configure the logical libraries.

After the XLS order is placed, Qualstar builds the library to the requested specifications and preinstalls the drive bays, cartridge slots, I/O ports, Host Bus Adapters (HBAs), and the power supplies. The equipment rack (if ordered), the tape drive assemblies, and the cartridges must be installed at the customer's site.

[Table 4-1](#) provides an annotated check list of XLS components, options, and accessories, so you can ensure all required parts are available before starting the installation.

	Item	Provided by	Notes
	LRM	Qualstar	Built and pre-tested to customer specifications; includes variable number of drive bays, cartridge bays, I/O ports, power supplies, and HBAs. May include additional cartridge storage areas behind the front panel and doors.
	MEM	Qualstar	As an option, one or two XLS-85000 or XLS-89000 MEMs can be attached to the XLS-8161100, XLS-832700 or XLS-820500. One or two XLS-85000 MEMs can be attached to the XLS-812300. The MEMs are shipped separately and installed at the customer's site.
	Expansion pods	Qualstar	As an option, one or two expansion pods can be attached to the XLS-812300. The expansion pods are installed at the factory.
	Tape drive assemblies	Qualstar	The tape drives are installed in drive carriers at the factory and are shipped separately.
	Drive filler assemblies	Qualstar	All unused tape drive locations require drive filler assemblies, which are shipped separately.
	Terminators for SCSI tape drives	Qualstar	A terminator is included with each SCSI tape drive.

Table 4-1 Installation check list

	Item	Provided by	Notes
	Equipment rack (optional)	Qualstar	An 6U or 8U equipment rack can be ordered as an option. The 6U rack can be installed at the factory; the 8U rack must be installed in the field.
	I/O port magazines	Qualstar	Additional I/O port magazines and covers are available for long-term cartridge storage.
	Power cord	Qualstar	The accessory kit includes the appropriate power cord for the input voltage and current.
	Door keys	Qualstar	The accessory kit includes keys to unlock the doors. The same key unlocks all doors.
	Calibration cartridge	Qualstar	The accessory kit includes a calibration cartridge, which is required to calibrate the tape drive locations.
	Stylus for touch screen	Qualstar	The accessory kit includes a stylus, which can be used to control the touch screen.
	Data and cleaning cartridges	Customer	Refer to the software application and tape drive documentation for data and cleaning cartridge requirements. In addition to any cleaning cartridges required for each logical library, four cleaning cartridges are needed for the system-reserved slots.
	Barcode labels	Customer	Refer to Qualstar Product Information Note 040, "Barcode Label Information and Specifications."
	SCSI cables	Customer	Refer to the installation plan to determine how many SCSI cables are required. The tape drives use HD68 connectors, while the HBAs in the XLS use VHDCI connectors.
	Uninterruptible power supply (UPS) and UPS cable	Customer	The battery backup module in the power/PC bay provides enough backup power to safely shut down the XLS if an unexpected power failure occurs. However, the battery module does not provide adequate power to protect the tape drives. For this reason, Qualstar recommends that you connect the XLS to an external UPS. Note: Be sure that the UPS uses "APC Smart Signaling" protocol and use a UPS Communication Cable Smart Signaling (part number 940-0024)
	Fibre Channel cables	Customer	Refer to the installation plan to determine how many Fibre Channel cables are required. The tape drives and the HBAs in the XLS both use multimode 62.5/125 fiber optic patch cables with duplex LC connectors.
	Rack-mounted equipment	Customer	You must provide your own equipment for the equipment rack.

Table 4-1 Installation check list (*continued*)

	Item	Provided by	Notes
	Power cords for equipment rack option	Customer	If you are installing the optional equipment rack with a North American power strip, you must supply power cords between the equipment and the power strip. If you are using the 240-volt power strip, you must supply a power cord from the power strip's IEC 60320 inlet connector to the power source.
	Ethernet cables	Customer	You must supply a CAT5e or better, straight-through Ethernet cable to connect the library to an Ethernet network for remote operation.

Table 4-1 Installation check list (*continued*)

Notes: