



XLS-810160 & XLS-810240 Tape Libraries

Site Planning Guide

501804 Rev. A

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Revision History

Revision	Release Date	Description
A	26-Feb-2010	Initial release

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.

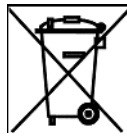
Qualstar equipment is manufactured from new parts, or new and used parts. In some cases, Qualstar equipment may not be new and may have been previously installed. Regardless, Qualstar's warranty terms apply unless the equipment is specifically identified by Qualstar as "used" or "refurbished."

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

Attn: Technical Support
3990-B Heritage Oak Court
Simi Valley, CA 93063

Monday - Friday 6:30 a.m. to 5:00 p.m. PST

Phone: (877) 444-1744
Phone: (805) 583-7744

After hours

Phone: (805) 526-7480
Phone: (805) 583-7748

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www.qualstar.com

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Notes:

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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. Six XLS models are currently available, but this manual will focus on the XLS-810160/810240 models.

1.1.1 XLS-810160/810240

Shown in [Figure 1-1](#), the XLS-810160/810240 accommodates up to 10 tape drives, up to 245 cartridges, and up to two, 10-slot I/O ports. As an option, one Media Expansion Modules (MEM) can be installed on the left side of the XLS-810160/810240. See [Section 1.1.2 on page 1-3](#) for more information.

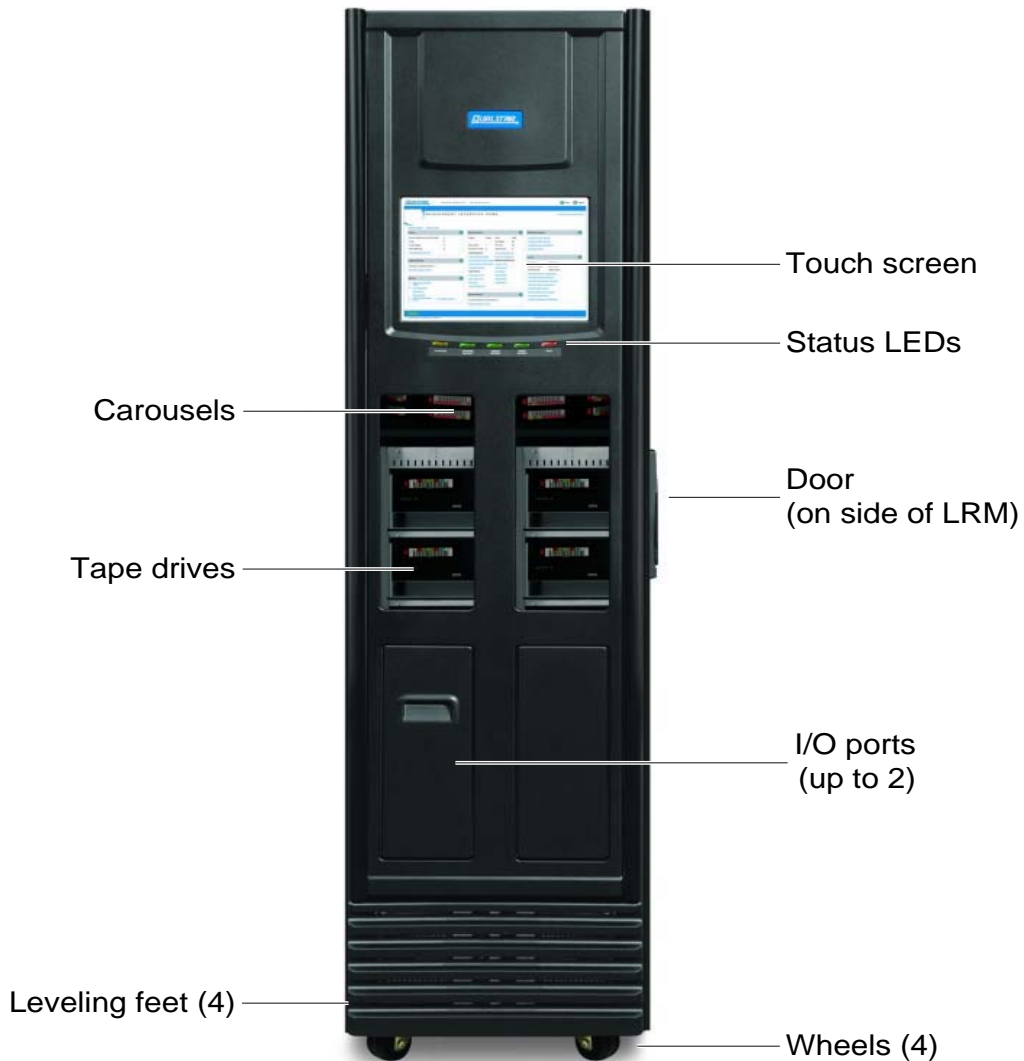


Figure 1-1 Front view of the XLS-810160/810240

1.1.2 Media Expansion Module (MEM)

Shown in [Figure 1-2](#) the Media Expansion Module (MEM) includes a rotating motor-driven carousel containing cartridge slots. The XLS-85000 (MEM2) can store up to 535 cartridges. The XLS-810160/810240 can be expanded by adding one XLS-85000 MEM to its left side.

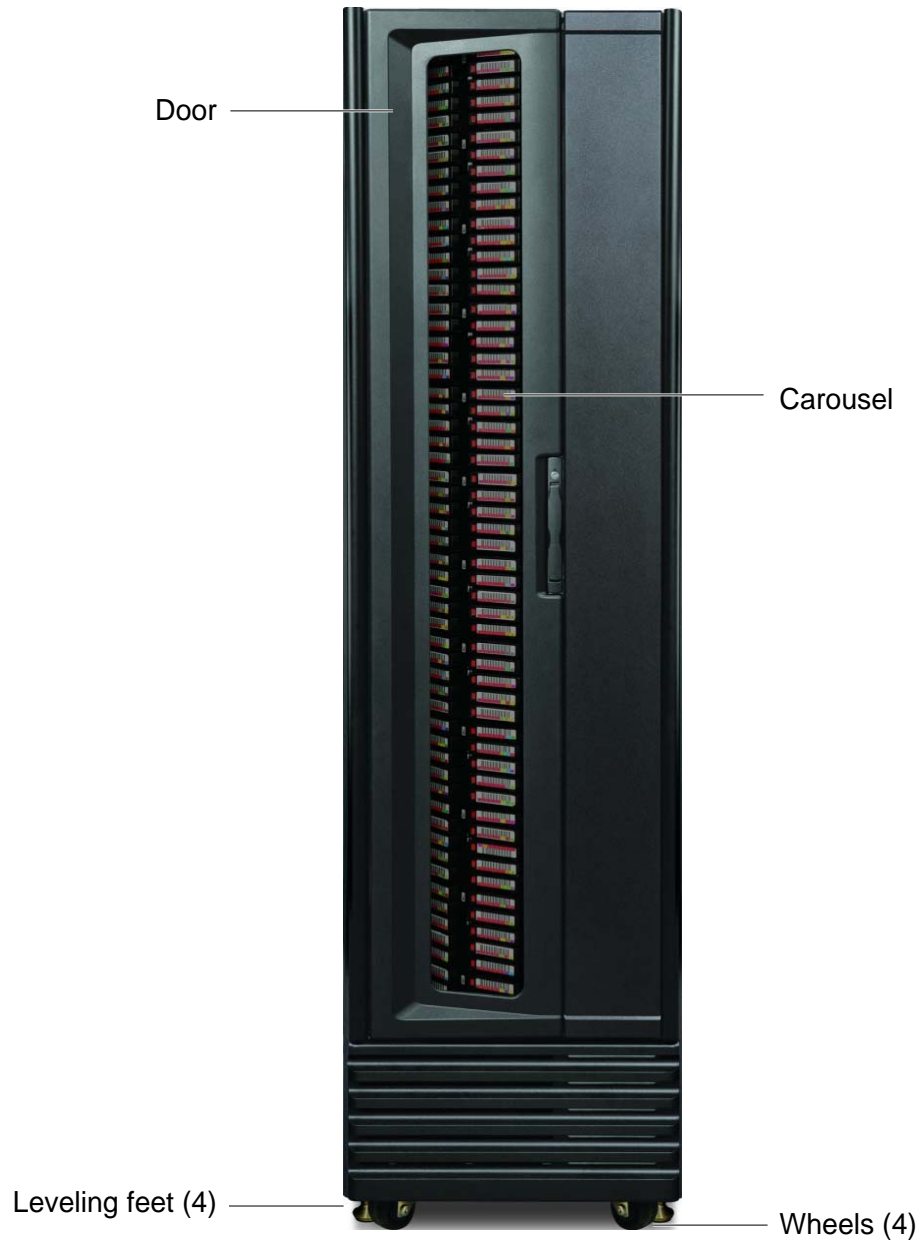


Figure 1-2 Front view of the XLS-85000 Media Expansion Module (MEM2)



Figure 1-3 LRM with one MEM2

2 Unloading and Moving the Library

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

- How the library—including the XLS, a Media Expansion Module (MEM), or an expansion pod—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 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:

810160 and 810240: 23.1 x 34.8 inches (59 x 89 cm)

With POD attached: 30.4 x 34.8 inches (78 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.

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 3-7](#).
- Power. See [Section 3.3 on page 3-7](#).
- Cooling. See [Section 3.4 on page 3-9](#).

3.1 Floor Space and Floor Loading

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

- XLS-810160 or XLS-810240, including an expansion pod. See [Section 3.1.1 on page 3-2](#).
- XLS-85000 Media Expansion Module (MEM2). See [Section 3.1.2 on page 3-4](#).

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:

- PC bay (includes the power switch and connector, system controller components, and cooling fans)
- Tape drives
- Power supplies
- Battery module

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

3.1.1 XLS-810160/810240

This section provides information about the dimensions and floor space requirements of the XLS-810160/810240.

XLS-810160/810240 Dimensions

[Figure 3-1](#) shows the dimensions of the XLS-810160/810240 base unit in inches and centimeters.

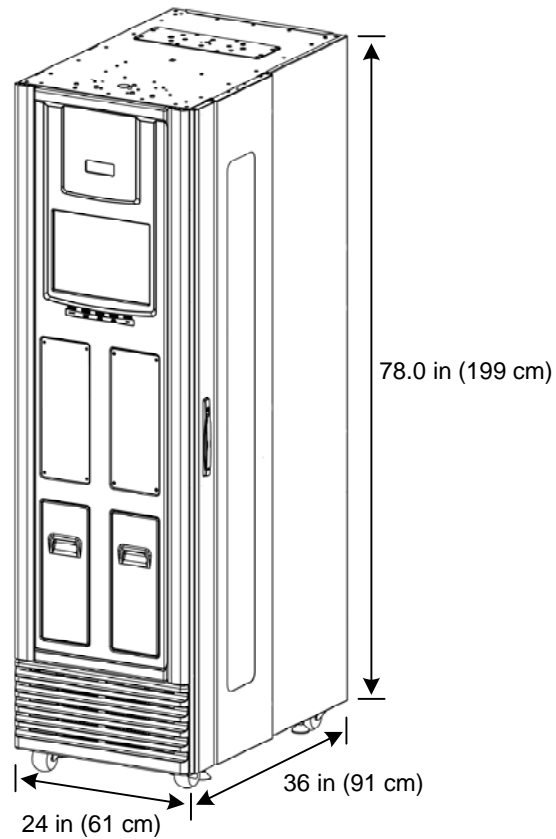


Figure 3-1 External dimensions of the XLS-810160/810240

XLS-810160/810240 Floor Space

[Table 3-1](#) lists the amount of floor space required to install the XLS-810160/810240 allowing for the door on the right side to be opened. 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	Pod	XLS-85000 MEM	Sq. feet	Sq. meters	Sq. feet	Sq. meters
1	0	0	9.42	.88	15.5	1.44
	1	0	13.70	1.27	19.78	1.84
	0	1	16.64	1.55	22.72	2.11

Table 3-1 Floor space requirements for the XLS-810160/810240 (see [Figure 3-2 on page 3-4](#))

XLS-810160/810240 Floor Loading

[Table 3-2](#) shows the weight and maximum floor loading for the XLS-810160/810240 alone, with an expansion pod or a XLS-85000 MEM2 attached.

Unit	Tape drives	Cartridges	Net weight empty (lbs / kg)	Net weight loaded (lbs / kg)	Floor loading (lbs/ft ² / kg/m ²)
810160	10	165	500 / 227	715 / 324	76 / 34
810160 with Expansion pod	10	281	535 / 243	799 / 362	58 / 26
810160 with MEM2	10	682	920 / 417	1402 / 636	84 / 38
810240	10	245	550 / 249	821 / 372	87 / 39
810240 with Expansion pod	10	361	585 / 265	905 / 411	66 / 30
810240 with MEM2	10	762	970 / 440	1508 / 684	91 / 42

Table 3-2 Weight and maximum floor loading for the XLS-810160/810240

Site Planning for Expansion Pods

The XLS-810160/810240 can be expanded by adding one expansion pod on the left side. 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 **left** side of the base.

Service Access Requirements for the XLS-810160/810240

[Figure 3-2](#) shows the service access requirements for an XLS-810160/810240, assuming that an expansion pod is installed.

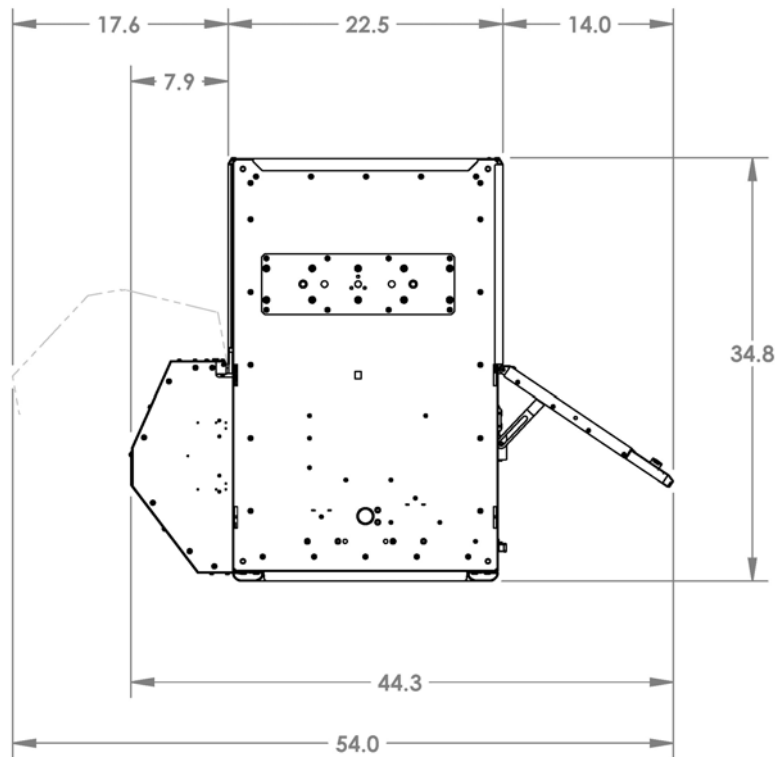


Figure 3-2 Service access requirements for the XLS-810160/810240, including expansion pod

3.1.2 Media Expansion Module (MEM)

Both LRMs can be expanded by adding one XLS-85000 MEM2 on the left side. If you plan to install a MEM (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 **left** side of the base.

MEM Dimensions

[Figure 3-3](#) shows the dimensions of the XLS-85000 MEM2 in inches and centimeters.

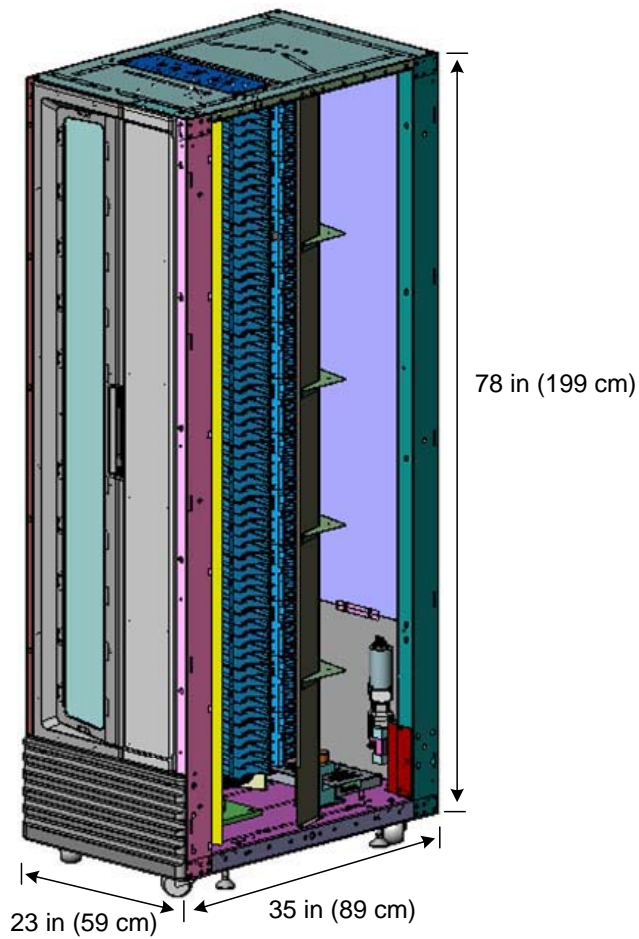


Figure 3-3 External dimensions of the XLS-85000 MEM2

Service Access Requirements for a MEM

[Figure 3-4](#) shows the service access requirements for a XLS-85000 MEM2, assuming that the door is open

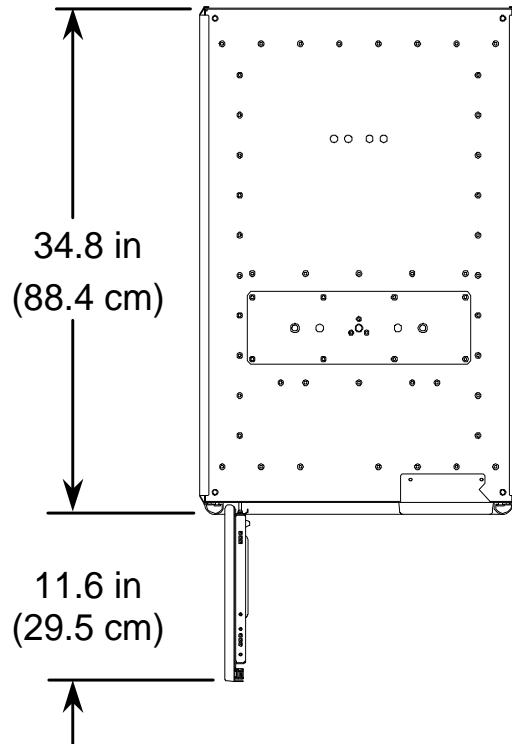


Figure 3-4 Service access requirements for a XLS-85000 MEM2

3.2 Environmental Specifications

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

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 3-3 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 3-4](#).

Rated Line Voltage	Maximum Operating Line Voltage	Minimum Operating Line Voltage	Line Frequency Range
100–240 VAC	264 VAC	105 VAC	48–62 Hz

Table 3-4 XLS mains requirements

The base library includes a 20-amp switch/circuit breaker. (Power is connected to the base library only; the MEM2 cabinet gets its power from the base library.) Other than selecting the appropriate AC power cord (see [Section 3.3.1 on page 3-8](#)), 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 3-5](#) lists the detachable six-foot (or two-meter) power cords available.

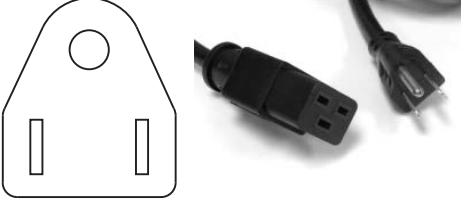
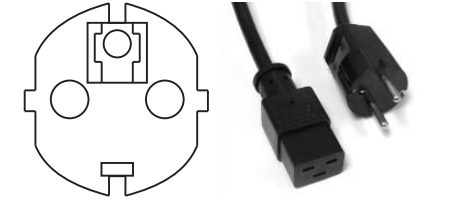
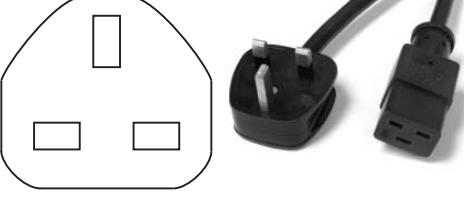
Country	Volts/Amps	Qualstar Part Number	Power Cord Description
North America and Japan	100–125V 15A	664-0107-6	
Continental Europe	230–240V 16A	664-0200-9	
United Kingdom	200–240V 13A	664-0201-7	

Table 3-5 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 3-5](#) lists the power cords that are available for redundant power input module equipped libraries.

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 3-6](#) lists the power requirements for a few typical system configurations as well as for a single tape drive or MEM2. You can use these number to determine the actual power needs of any system configuration.

System configuration	Peak Consumption	Typical Consumption
1 library with 6 tape drives	550 watts 1,878 BTUs/hr	350 watts 1,195 BTUs/hr
1 library with 10 tape drives	675 watts 2,305 BTUs/hr	430 watts 1,469 BTUs/hr
Each tape drive adds	35 watts 120 BTUs/hr	24 watts 82 BTUs/hr
A MEM2 adds	157 watts 536 BTUs/hr	16 watts 55 BTUs/hr

Table 3-6 Approximate XLS power consumption based on LTO tape drives

In [Table 3-6](#) the typical power figures indicate the power consumed when the robotic handler and tape drives are idle. The peak power figures indicate the power consumed when the robotics are accelerating and all of the tape drives are writing. The peak power levels are not expected to last for more than two seconds at a time.

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 3-6](#).

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 3-6](#), 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 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, I/O ports, power supplies, and HBAs.
	MEM	Qualstar	As an option, one XLS-85000 MEM2 can be attached to the left side of the LRM. The MEM2 is shipped separately and installed at the customer's site.
	Expansion pods	Qualstar	As an option, one expansion pods can be attached to the left side of the LRM. The expansion pods are installed at the factory or at the customer's site.
	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.
	I/O port magazines	Qualstar	Additional I/O port magazines and covers are available for long-term cartridge storage.

Table 4-1 Installation check list

✓	Item	Provided by	Notes
	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 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.
	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*)