



# XLS

ENTERPRISE LIBRARY SYSTEM

**SIMPLY RELIABLE ENTERPRISE DATA STORAGE**



FEATURING



- *Readily grows from 350 to over 11,700 tapes*
- *Scales easily up to 159 drives*
- *Encryption key management protects data on tapes in transit*
- *Very high density - over 289 TB per square foot*
- *Up to eight independent host connections*
- *Advanced single-view, browser-based interface provides uniform local and worldwide management*
- *Highly efficient power design: low power consumption, reduced cooling requirements*

# XLS

ENTERPRISE LIBRARY SYSTEM

SIMPLY RELIABLE ENTERPRISE DATA STORAGE

**XLS** is Qualstar's highly modular enterprise library design delivering intelligence, density, flexibility, scalability, and ease of use coupled with our proven record of reliability and value.



XLS features Compass Architecture™, an advanced robotics design that yields superior reliability and density; X-Link™, a single-view worldwide management interface, and N+1 power management, redundant cooling, and hot-swap components for high reliability.

## XLS ADVANCED MODULAR DESIGN

Start with 350 tapes and grow in easy increments to over 11,700 tapes as your storage requirements grow. Cartridge slots and tape drives are readily added to maintain data access and control cost.

XLS combines two distinct modules to deliver high-density, cost-effective and flexible library systems. The Library Resource Module, LRM, is a complete, self-contained library and forms the base unit for larger systems. The Memory Expansion Modules, MEMs, contain 535 or 1,075 tape storage slots in very compact footprints.

Three LRM models house up to 32 drives and 1,066 slots. Each LRM is highly scalable, making it easy to vary drive and slot ratios to optimize resources. Support for up to eight logical library partitions is built into each XLS, giving administrators the flexibility needed to economically

handle multiple applications in a single *Simply Reliable* library.



LRM 832700 MEM1

When additional storage is required, one or two MEMs can be easily added to each LRM. Two MEM models contain either 535 or 1,075 tape slots. Qualstar's trademark rotary carousel design yields very high storage density,



In just 21" of horizontal travel the XLS robot can access over 3,200 tapes.

over 125 tapes per square foot in an MEM1. If more data transfer capability is required, adding LRMs expands the number of tape drives up to 159. Or, two MEMs can be added to one LRM to deliver a configuration that packs over eight petabytes (native) in just 28 square feet of valuable IT floor space. Capacity expansion is both quick and cost effective.

## XLS HIGHLIGHTS

| COMPONENT                         | LRM 820500   | LRM 832700   |
|-----------------------------------|--|--|
| <b>Drive Bays - Standard</b>      | 1 with 4 drive slots                               | 2 with 8 drive slots                               |
| <b>Drive Bays - Optional</b>      | Up to 4 additional bays with 4 drive slots in each | Up to 6 additional bays with 4 drive slots in each |
| <b>Cartridge Slots - Standard</b> | 355*   | 435*   |
| <b>Cartridge Slots - Optional</b> | Add 110  | Add 110 or 220                                     |
| <b>I/O Slots - Standard</b>       | 10   | 20   |
| <b>I/O Slots - Optional</b>       | Add 10 or 30 (maximum 40)                          | Add 20 (maximum 40)                                |
| <b>Equipment Bay Options</b>      | 6U or 8U   | 6U or 8U   |
| <b>Supported Tape Drives†</b>     | LTO 4, LTO 5 and LTO 6                             | LTO 4, LTO 5 and LTO 6                             |
| <b>Library Interface</b>          | Fibre Channel added in increments of 2 (maximum 8) | Fibre Channel added in increments of 2 (maximum 8) |

\* Each additional drive bay subtracts 30 tape slots † Single port and dual port Fibre Channel drives

## ENCRYPTION ENABLED

XLS single-key library managed encryption eliminates data loss if tapes in transit are lost. The XLS key manager enables use of the powerful data encryption capability built into every LTO tape drive. Simple, easy-to-use, library-based encryption key management allows administrators to assign a separate key to the tapes in each partition.

the power consumption, reliability problems and delays that can occur with robots that must traverse long distances between cabinets at high speed to locate distant cartridges.

## FLEXIBILITY

LRM models hold up to 32 LTO tape drives. Bays holding up to 4 tape drives or 30 cartridge slots can be mixed and matched to meet changing requirements. Up to

## POWERFUL COMPASS ARCHITECTURE

Qualstar's patented Compass Architecture delivers a library system where one highly reliable robot travels an average of just 21 inches horizontally to select over 3,200 tapes. Robotics located in each LRM simply reach into adjacent MEMs to access cartridges located there. The robotics always remain within the LRM cabinet, eliminating



Robotics never leave the LRM to access cartridges in the MEM, insuring fast access times and high reliability.

| LRM 8161100  | MEM1  | MEM2 |
|--|-------|------|
| 1 with 4 drive slots                               |       |      |
| Up to 3 additional bays with 4 drive slots in each |       |      |
| 846*   | 1,075 | 535  |
| Add 110 or 220                                     |       |      |
| 20   |       |      |
| Add 10 or 30 (maximum 40)                          |       |      |
| N/A  |       |      |
| LTO 4, LTO 5 and LTO 6                             |       |      |
| Fibre Channel added in increments of 2 (maximum 8) |       |      |

40 I/O slots are supported in each LRM. The XLS accommodates up to four dual-channel LIAs yielding up to eight independent library control channels.

**LOGICAL LIBRARY PARTITIONS**

Up to eight logical library partitions can be established. Each partition contains tape drives, cartridge slots, and a dedicated library control interface. X-Link provides complete information about and control of the storage elements assigned to each partition, making setup, administration and re-configuration easy.

**DATA-GUARD™ UPS INVENTORY SENTRY™**

XLS delivers built-in power failure protection for the library robotics, independent of any external power protection hardware. If input power to the library fails, the Data-Guard

UPS maintains system power long enough to protect any media in transition from harm. It also carries out an orderly shutdown of the library controllers to allow problem-free restarts when power returns. UPS protection is restored within 10 minutes of restart as normal operation recharges the onboard battery.

Inventory Sentry senses whether tapes have actually been moved when a door is opened. If they haven't, operation is resumed without causing a time consuming reinventory.

**EASE OF SERVICE**

XLS uses a modern design incorporating easily exchanged modules. The power supplies, cooling fans, and tape drives are all designed for easy replacement. MTTR for any service operation is less than 30 minutes. Remote access by Qualstar Technical

Support will speed monitoring and diagnosis to eliminate service interruptions.

**HIGH AVAILABILITY**

N+1 power is standard on the XLS-820500, XLS-832700 and XLS-8161100. XLS uses a distributed control intelligence connected by a high reliability CAN bus. Advanced diagnostics and error recovery procedures are incorporated in the XLS firmware design.



**SINGLE-VIEW, WORLDWIDE MANAGEMENT INTERFACE**

X-Link, the XLS management interface provides intelligent, powerful tools and comprehensive information to monitor and manage library operations. X-Link combines an easy to use graphical interface with sophisticated library control and management tools.

**FLEXIBLE, WORLDWIDE ACCESS**

X-Link is accessed locally using the 15-inch, color touch screen

or the Ethernet port built into the library, or remotely via a local area network or the Internet. Each connection mode provides the same security features. Multiple simultaneous connections are supported. Remote access requires nothing more than a standard browser. Authorized users receive a unique ID and password, and assignment to one or more user groups. Access through a VPN or firewall ensures complete system security.

**LOGICAL LIBRARY MANAGEMENT**

X-Link can group tape drives, cartridge slots and I/O ports into up to eight logical libraries. Applications control each partition over a dedicated command and control port. Events for each logical library are reported by X-Link.

**SIMPLE INSTALLATION AND SETUP**

The X-Link homepage provides a high-level summary of library status and streamlined access to library settings and policies, to operations of the physical library, the logical library partitions, the user groups and the event log.

**EVENT MONITORING AND NOTIFICATION**

X-Link can send detailed event notices via e-mail to designated administrators and service personnel. Diagnostics can be run remotely speeding recovery, saving both time and money.



Qualstar's trademark robotic mechanisms provide precise positioning and flawless media handling for years of Simply Reliable operation.

## XLS CONFIGURATION EXAMPLES

| Configuration                 | Tape Drive Slots | Cartridge Slots† | Native Capacity LTO 5 | Native Capacity LTO 6 | Native Data Rate LTO 5 | Native Data Rate LTO 6 | TB per Square Foot LTO 6 | Cartridges per Square Foot |
|-------------------------------|------------------|------------------|-----------------------|-----------------------|------------------------|------------------------|--------------------------|----------------------------|
| <b>XLS-820500</b>             | 4                | 465              | 698 TB                | 1.1 PB                | 2.0 TB/hr              | 2.3 TB/hr              | 137                      | 55                         |
| <b>XLS-820500 + 1 MEM2</b>    | 6                | 970              | 1.5 PB                | 2.4 PB                | 3.0 TB/hr              | 3.4 TB/hr              | 175                      | 70                         |
| <b>XLS-820500 + 1 MEM1</b>    | 8                | 1,510            | 2.3 PB                | 3.7 PB                | 4.0 TB/hr              | 4.6 TB/hr              | 222                      | 89                         |
| <b>XLS-832700</b>             | 8                | 655              | 983 TB                | 1.6 PB                | 4.0 TB/hr              | 4.6 TB/hr              | 153                      | 61                         |
| <b>XLS-832700 + 1 MEM1</b>    | 12               | 1,700            | 2.6 PB                | 4.2 PB                | 6.0 TB/hr              | 6.9 TB/hr              | 225                      | 88                         |
| <b>3 XLS-832700 + 4 MEM1</b>  | 36               | 6,175            | 9.3 PB                | 15.4 PB               | 18.1 TB/hr             | 20.7 TB/hr             | 233                      | 93                         |
| <b>XLS-8161100</b>            | 4                | 1,066            | 1.6 PB                | 2.6 PB                | 2.0 TB/hr              | 8.3 TB/hr              | 248                      | 99                         |
| <b>XLS-8161100 + 1 MEM1</b>   | 4                | 2,141            | 3.2 PB                | 5.3 PB                | 2.0 TB/hr              | 2.3 TB/hr              | 278                      | 111                        |
| <b>2 XLS-8161100 + 3 MEM1</b> | 8                | 5,357            | 8.0 PB                | 13.4 PB               | 4.0 TB/hr              | 4.6 TB/hr              | 285                      | 114                        |
| <b>5 XLS-8161100 + 6 MEM1</b> | 20               | 11,780           | 17.6 PB               | 28.4 PB               | 10.1 TB/hr             | 11.5 TB/hr             | 282                      | 113                        |

† May include optional cartridge slots



Configurations containing up to 5 LRMs and 6 MEMs store over 11,700 tapes.

## XLS SPECIFICATIONS

| Specification                                  | LRM                                  | MEM1                                | MEM2                                |
|--|--------------------------------------|-------------------------------------|-------------------------------------|
| <b>Dimensions 820500</b><br>(w, d, h)          | 35 x 35 x 78 in<br>88 x 88 x 198 cm  | 35 x 35 x 78 in<br>88 x 88 x 198 cm | 22 x 35 x 78 in<br>56 x 88 x 198 cm |
| <b>Dimensions 832700</b><br>(w, d, h)          | 45 x 35 x 78 in<br>113 x 88 x 198 cm |                                     |                                     |
| <b>Dimensions 8161100</b><br>(w, d, h)         | 45 x 36 x 78 in<br>113 x 91 x 198 cm |                                     |                                     |
| <b>Weight 820500</b>                           | 1,033 lbs / 455 kg                   |                                     |                                     |
| <b>Weight 832700</b>                           | 1,193 lbs / 541 kg                   |                                     |                                     |
| <b>Weight 8161100</b><br>(all fully populated) | 1,550 lbs / 703 kg                   | 1,057 lbs / 479 kg                  | 687 lbs / 312 kg                    |
| <b>Power Requirements</b>                      | 100 – 240 VAC • 48 – 62 Hz           |                                     |                                     |
| <b>Reliability</b>                             | > 2,000,000 MEBF                     |                                     |                                     |
| <b>MTTR</b>                                    | < 30 minutes                         |                                     |                                     |

## XLS Performance

- Load a drive or slot within an LRM: 11 seconds average
- Load a drive or slot to/from an MEM: 13 seconds average

## Learn more at [www.Qualstar.com/XLS](http://www.Qualstar.com/XLS)

Qualstar Corporation does not warrant the MEBF to be representative of any particular unit installed for customer use. Failure rates are derived from a large database of test samples. The individual failure rate will vary from unit to unit.

Every effort has been made to keep the information contained in this document current and accurate as of the date of publication or revision. However, no guarantee is given or implied that the document is error-free or that it is accurate with regard to any specification. Qualstar reserves the right to change specifications without notice.

Qualstar and the Qualstar logo are registered trademarks of Qualstar Corporation. Compass Architecture, Data-Guard and X-Link are trademarks of Qualstar Corporation. All other trademarks are the property of their respective owners.

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.

Copyright © 2013 Qualstar Corporation. All rights reserved. Printed in USA. • DS 321 3/13

## QUALSTAR CORPORATION

3990-B Heritage Oak Court • Simi Valley, CA 93063 USA • Fax 805-583-7749 • Tel 805-583-7744 • Toll Free 888-814-3975 USA only  
E-mail: [sales@qualstar.com](mailto:sales@qualstar.com) • Website: [www.qualstar.com](http://www.qualstar.com) • NASDAQ: QBAK

