



Scalar[®] 1000 Library

Planning Guide

 Advanced Digital Information Corp

Copyright Notice

© 2002-2004 ADIC®

The information contained in this document is subject to change without notice.

This document contains proprietary information which is protected by copyright. All rights are reserved. No part of this document may be photocopied, reproduced, or translated to another language without prior written consent of ADIC.

ADIC shall not be liable for errors contained herein or for incidental or consequential damages (including lost profits) in connection with the furnishing, performance or use of this material whether based on warranty, contract, or other legal theory.

All trademarks are the property of their respective owners.

Copyright Notice (Europe)

© 2002-2004 ADIC Europe™

All rights reserved. No part of this document may be copied or reproduced in any form or by any means, without prior written permission of ADIC Europe, ZAC des Basses Auges, 1,rue Alfred de Vigny, 78112 - Fourqueux, France.

ADIC Europe assumes no responsibility for any errors that may appear in this document, and retains the right to make changes to these specifications and descriptions at any time, without notice.

This publication may describe designs for which patents are pending, or have been granted. By publishing this information, ADIC Europe conveys no license under any patent or any other right.

ADIC Europe makes no representation or warranty with respect to the contents of this document and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. Further, ADIC Europe reserves the right to revise or change this publication without obligation on the part of ADIC Europe to notify any person or organization of such revision of change.

Every effort has been made to acknowledge trademarks and their owners. Trademarked names are used solely for identification or exemplary purposes, any omission is unintentional.

ADIC is a registered trademark and ADIC Europe is a trademark of Advanced Digital Information Corporation.

ADIC USA
Tel.: +1-303-705-3900
Fax: +1-303-792-2465
ATAC: 1-800-827-3822
www.adic.com

ADIC Europe
ZAC des Basses Auges
1, rue Alfred de Vigny
78112 Fourqueux, France
Tel.: +33.1.3087.5300
Fax: +33.1.3087.5301

ADIC Germany Beteiligungs GmbH, KG
Eschenstraße 3
D-89558
Böhmenkirch, Germany
Tel: +00.800.9999.3822

Document number: 6-01150-01 Rev A
Published: 22 June 2004

Printed in the USA

Contents

1

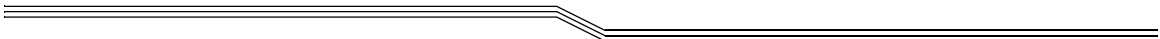
Introduction

Overview	1-3
Intended Audience	1-3
Organization	1-3
Associated Documents	1-4
ADIC Technical Assistance Center	1-4

2

System Description

General Description	2-3
Modules	2-4
Control Module (CM)	2-5
Expansion Module (EM)	2-5
Internal Components	2-6
Tape Drives	2-6
Cartridge Accessor	2-6



Tape Cartridges	2-7
Insert/Eject Station	2-7
Connectivity	2-8
SAN Connectivity	2-8
SCSI Connectivity	2-10
Scalar DLC Option	2-11
Remote Management Unit	2-12

3

System Configurations

Overview	3-3
Configurations	3-4

4

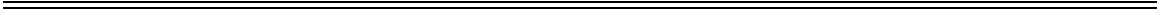
System Specifications

Overview	4-3
Performance Specifications	4-3
Environmental Specifications	4-3
Electrical Specifications	4-4
Physical Specifications	4-5
Foot Pad Positions	4-6
Barcode Requirements	4-7

Site Preparation

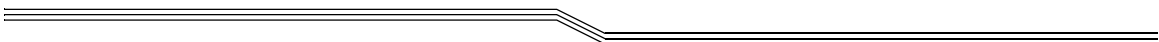
Overview	5-3
Packaging Dimensions	5-3
General Information	5-4
Physical Environment	5-5
Access Conditions	5-5
Additional Comments	5-9

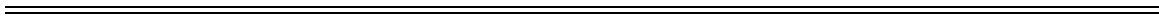
Index



Figures

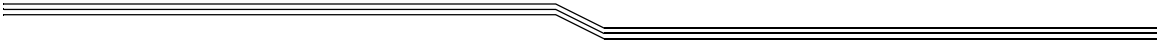
Figure 2-1	Control Module and Expansion Module	2-4
Figure 2-2	Storage Networking Fibre Channel Attachment (Through an SNC)	2-9
Figure 2-3	Direct SCSI Attachment	2-10
Figure 2-4	Network Attachment	2-12
Figure 3-1	Basic Library with No Expansion Modules.	3-4
Figure 3-2	Library with One Expansion Module.	3-5
Figure 3-3	Library with Two Expansion Modules.	3-6
Figure 3-4	Library with Three Expansion Modules	3-7
Figure 4-1	Foot Pad Positions (Control Module and Expansion Module).	4-6

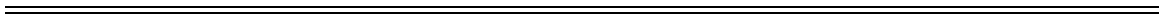




Tables

Table 2-1	Drives and Storage Capacities.....	2-3
Table 3-1	Library Configurations.....	3-3
Table 4-1	Performance Specifications	4-3
Table 4-2	Environmental Specifications	4-3
Table 4-3	Electrical Specifications	4-4
Table 4-4	Typical Component Power Consumption (Worst Case).....	4-4
Table 4-5	Physical Specifications	4-5

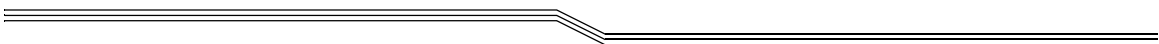


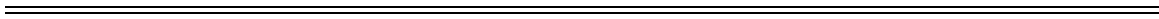


1

Introduction

Overview	1-3
Intended Audience	1-3
Organization	1-3
Associated Documents	1-4
ADIC Technical Assistance Center	1-4





Overview

This chapter provides general information on this manual, including intended audience, organization, associated documents, and where to acquire technical assistance.

The information in this chapter is organized as follows:

- *Intended Audience* on page 1-3
- *Organization* on page 1-3
- *Associated Documents* on page 1-4
- *ADIC Technical Assistance Center* on page 1-4

Intended Audience

This manual is for sales personnel and potential purchasers of the Scalar 1000¹ library.

Organization

This manual contains information detailing the Scalar 1000 library. The chapters include:

- | | |
|-----------|--|
| Chapter 1 | <i>About this Guide</i> - Describes the intended audience, organization, associated documents, and where to acquire additional assistance. |
| Chapter 2 | <i>System Description</i> - Describes general information, Scalar 1000 library modules, I/O status and control, and host attachments. |
| Chapter 3 | <i>System Configurations</i> - Describes the structure of the basic Scalar 1000 library and available optional components. |
| Chapter 4 | <i>System Specifications</i> - Describes the physical and electrical specifications of the Scalar 1000 components. |

1. Scalar 1000 is a trademark of ADIC. Throughout the remainder of this document, we refer to Scalar 1000 library as Scalar 1000 or the library.

Site Preparation - Provides forms for planning space, physical, electrical, and environmental requirements. This information is required by the installation team.

Associated Documents

6-00054-xx	Scalar 1000 Operator Guide
6-00055-xx	Scalar 1000 SCSI Reference Manual
6-01151-xx	Scalar 1000 Maintenance Guide

ADIC Technical Assistance Center

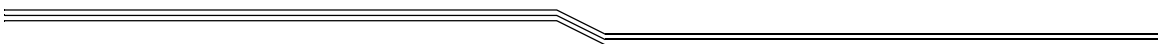
If problems cannot be solved with the aid of this document or if recommended training is desired, contact the ADIC Technical Assistance Center (ATAC).

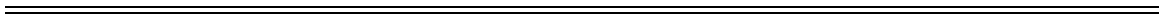
- In the USA: 800.827.3822
- Outside the USA, toll free: 00.800.9999.3822
- email: support@adic.com

2

System Description

General Description	2-3
Modules	2-4
Control Module (CM)	2-5
Expansion Module (EM)	2-5
Internal Components	2-6
Tape Drives	2-6
Cartridge Accessor	2-6
Tape Cartridges	2-7
Insert/Eject Station	2-7
Connectivity	2-8
SAN Connectivity	2-8
SCSI Connectivity	2-10
Scalar DLC Option	2-11
Remote Management Unit	2-12





General Description

Note

To accommodate IBM 3590 drives, you must add an Extension frame to a Control Module or an Expansion Module to increase module depth.

The Scalar 1000 automates the storage, retrieval, and control of 3590, LTO, DLT, SDLT, and AIT tape cartridges. Tape cartridges are mounted and dismounted in tape drives using application software from the host without operator intervention.

The Scalar 1000 is a linear storage library that can be expanded from a single media library to a mixed media library. The Scalar 1000 consists of a Control Module (CM) and up to three Expansion Modules (EMs). See Figure 2-1 on page 2-4. The CM contains library control hardware, the Cartridge Accessor, an Insert/Eject Station (I/E Station), an Operator Panel, cartridge storage cells, and tape drives. The EM can contain tape drives and cartridge storage.

The Scalar 1000 can be configured for approximately 118 to 1182 cartridges (the cartridge capacity depends on the library configuration and features installed), and 1 to 48 drives. See Table 2-1.

Table 2-1 Drives and Storage Capacities

	High Profile	Low Profile		
	3590/DLT	LTO	DLT/SDLT	AIT
Drives	1 - 16	1 - 48	1 - 48	1 - 48
Cartridges	118 - 788	140 - 938	118 - 788	237 - 1182

Modules

The Scalar 1000 Library has the following modules:

- *Control Module (CM)* on page 2-5
- *Expansion Module (EM)* on page 2-5

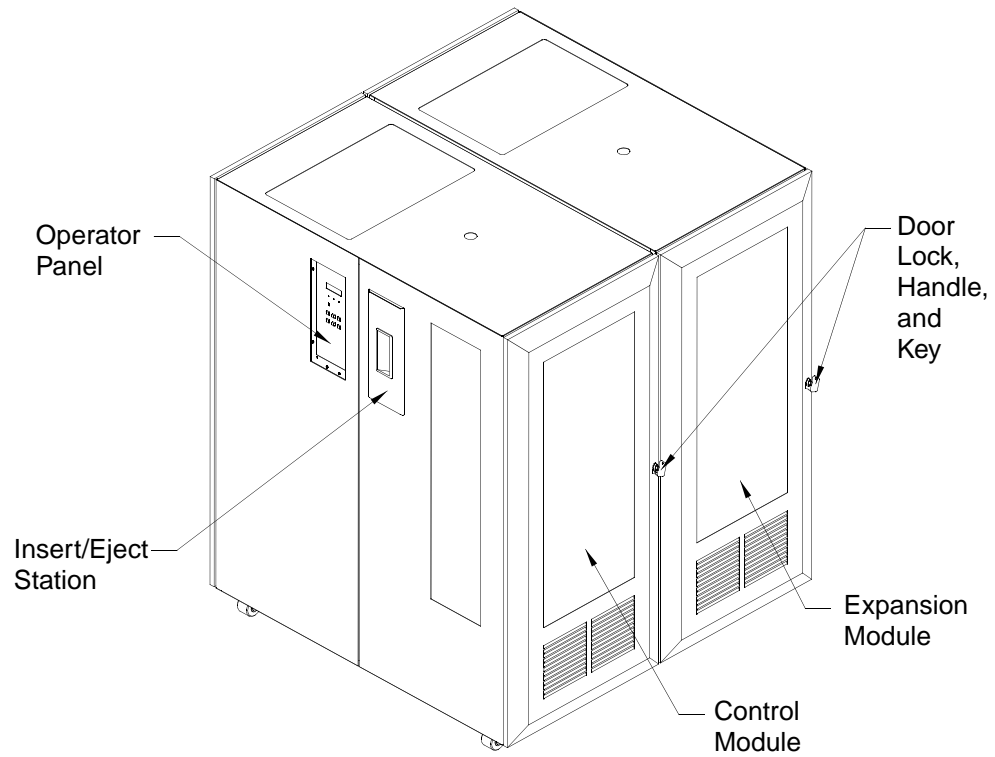


Figure 2-1 Control Module and Expansion Module

Control Module (CM)

The CM is a single module, standalone Scalar 1000 library. It contains an LCD Operator Panel, AC and DC power supplies, robot control electronics, and host interfaces. It can be attached to an EM to create an expanded Scalar 1000 library. See Figure 2-1 on page 2-4.

The tape and drive bay capacity varies in the CM. Each drive bay accommodates:

- One or two High Profile tape drives
- One to six Low Profile tape drives
- One to 12 Low Profile 8 mm (AIT) tape drives

Expansion Module (EM)

The EM extends the length of the aisle and adds drives and cartridges to the library. The Scalar 1000 maximum configuration includes three EMs. These modules extend the X-rails (top and bottom) which allow the Accessor to travel the length of the library. See Figure 2-1 on page 2-4.

Internal Components

The Scalar 1000 consists of the following internal components:

- Tape Drives
- Cartridge Storage
- Cartridge Accessor
- Tape Cartridges
- Insert/Eject Station

Tape Drives

The Scalar 1000 supports the following tape drives:

- 3490E
- NCTP
- 3590
- DLT (high profile and low profile)
- SDLT
- AIT-1
- AIT-2
- AIT-3
- LTO-1
- LTO-2

Cartridge Accessor

The Cartridge Accessor identifies and moves cartridges between the storage cells, tape drives, and the I/E Station. The Cartridge Accessor has:

- A Gripper Assembly for getting and putting cartridges in storage cells, tape drives or the I/E Station.
- A Barcode Scanner for reading the external barcode labels on the cartridges. The Barcode Scanner is used during the inventory process to locate and categorize all cartridges installed in the library. It is also used during the teaching process in which it reads the fiducial labels to identify the types of storage arrays and tape drives installed in the Library. (Fiducial labels are barcode labels located on tape drives and storage arrays. Each label has a different value to identify the various types of storage arrays or tape drives that may be installed in the Library. Refer to the *Scalar 1000 Operator Guide* for a list of all fiducial labels.)


-
-
- An X-Axis drive for moving the Cartridge Accessor the length of the rails in the CM and the EMs.
 - A Y-Axis drive for moving the Gripper Assembly vertically in the CM and the EMs.

Tape Cartridges

The Scalar 1000 automates the retrieval, storage, and control of 3590, DLT, SDLT, LTO, and AIT cartridges.

Two characters are used to identify the cartridge *type*. For SDLT and LTO cartridges, the media identifier is embedded at the end of the barcode label. Any code 39 labels are supported.

Refer to the *Scalar 1000 Operator Guide* for more information on label types supported by the Scalar 1000.

 **Note**
Duplicate barcode labels (even with different media identifiers) are **NOT** supported.

Insert/Eject Station

The I/E Station allows for the insertion and ejection of cartridges without interrupting the normal operation of the library.

The I/E Station uses two different cartridge magazines. One magazine has a capacity of **six** half-inch cartridges (3590/ DLT/SDLT/LTO), the other magazine has a capacity of **nine** 8 mm (AIT) cartridges. A maximum of two magazines of any type can be present in the I/E Station at any time. If you have two different magazines in an I/E Station, such as one half-inch and one 8 mm magazine, the library requires Scalar DLC. For more information on Scalar DLC, refer to *Scalar DLC Option* on page 2-11 or contact an ADIC representative.

The coordinate for the rows in the old style I/E Station is always contiguous (1 to 12 for half-inch and 1 to 18 for 8 mm).

Since two magazines of different cartridge types can be present in the I/E station at any time, the first cell of the bottom magazine of the new style I/E station always starts with Row 10.

Connectivity

The Scalar 1000 offers several different connectivity options, allowing the library to support a wide range of backup topologies and applications. Flexible library connectivity delivers active support for loop and switched fabric Fibre Channel protocols, along with SCSI.

SAN Connectivity

The Scalar 1000 can be connected to a Fibre Channel Storage Area Network (SAN) via the Storage Networking Controller (SNC).

The SNC provides four parallel SCSI bus connections, one ethernet, and two Fibre Channel connections. The SNC allows native SCSI devices (for example: robot controller and tape drives) to be seen by any hosts that are attached to the SAN.

The library controller and the tape drives access the SAN via the SNCs that can be installed in a Scalar 1000 CM or EM. See Figure 2-2 on page 2-9.

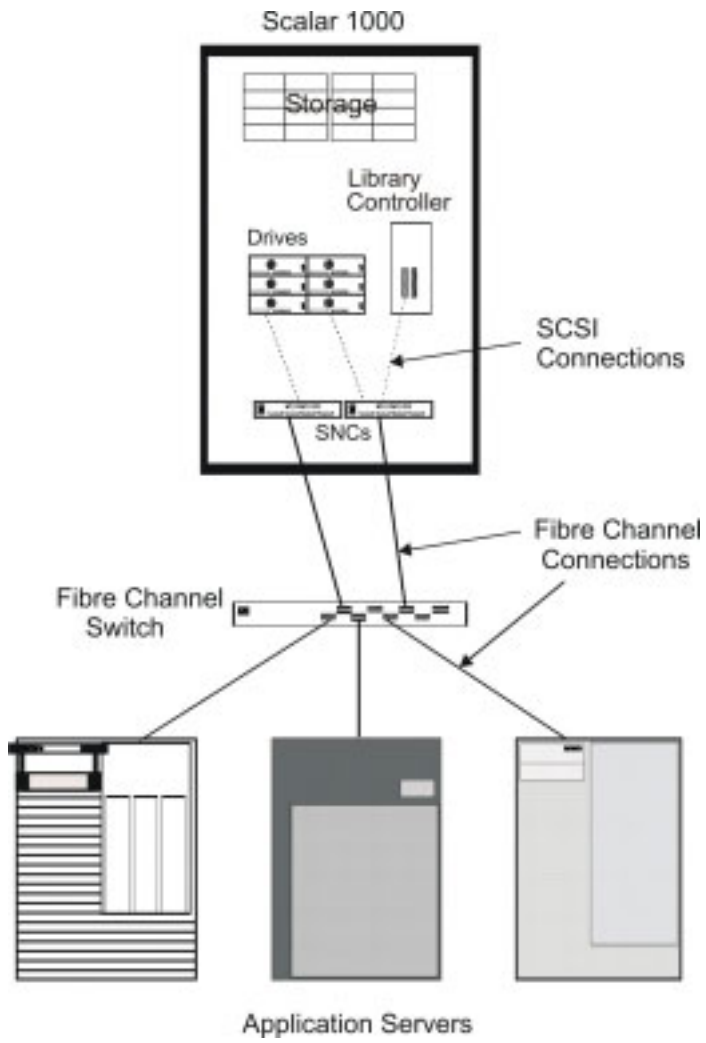


Figure 2-2 Storage Networking Fibre Channel Attachment (Through an SNC)

SCSI Connectivity

The Scalar 1000 can be directly connected to one or two SCSI buses. Because each SCSI bus is independent, it can be Single Ended, High Voltage Differential, or Low Voltage Differential. Both ends of each bus must be terminated and a terminator is shipped with each SCSI adapter card ordered.

The minimum configuration of a Scalar 1000 library requires one SCSI adapter and the SCSI type (Single Ended, High Voltage Differential or Low Voltage Differential).

Although the Scalar 1000 can be attached to a wide SCSI bus, it is not a wide SCSI device and its SCSI ID must be in the range of 0 to 7. See Figure 2-3.

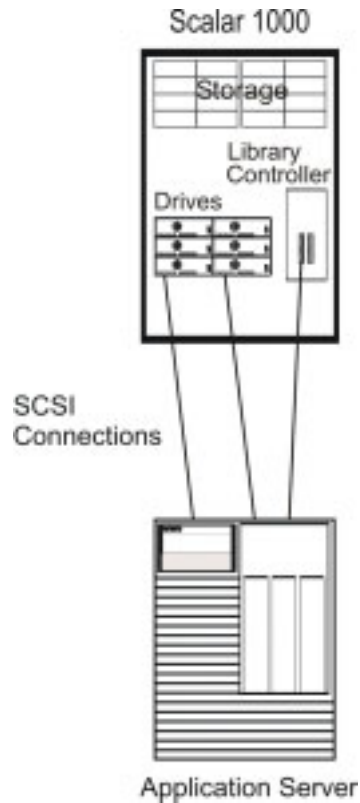


Figure 2-3 Direct SCSI Attachment



Scalar DLC Option

The Scalar 1000, through its optional Scalar Distributed Library Control (Scalar DLC) interface, provides the industry's most advanced combination of management and diagnostics.

The Scalar DLC software serves as a centralized library management tool that simplifies and automates the tracking and management of all system resources for optimal performance and maximum availability.

The Scalar DLC attaches to the library SCSI bus. The host continues to directly attach to the drives through a SCSI or a Fibre Channel Interface.

For more information on Scalar DLC, including detailed information on the supported interfaces, refer to ADIC Scalar DLC documentation. See Figure 2-4 on page 2-12 for more information.

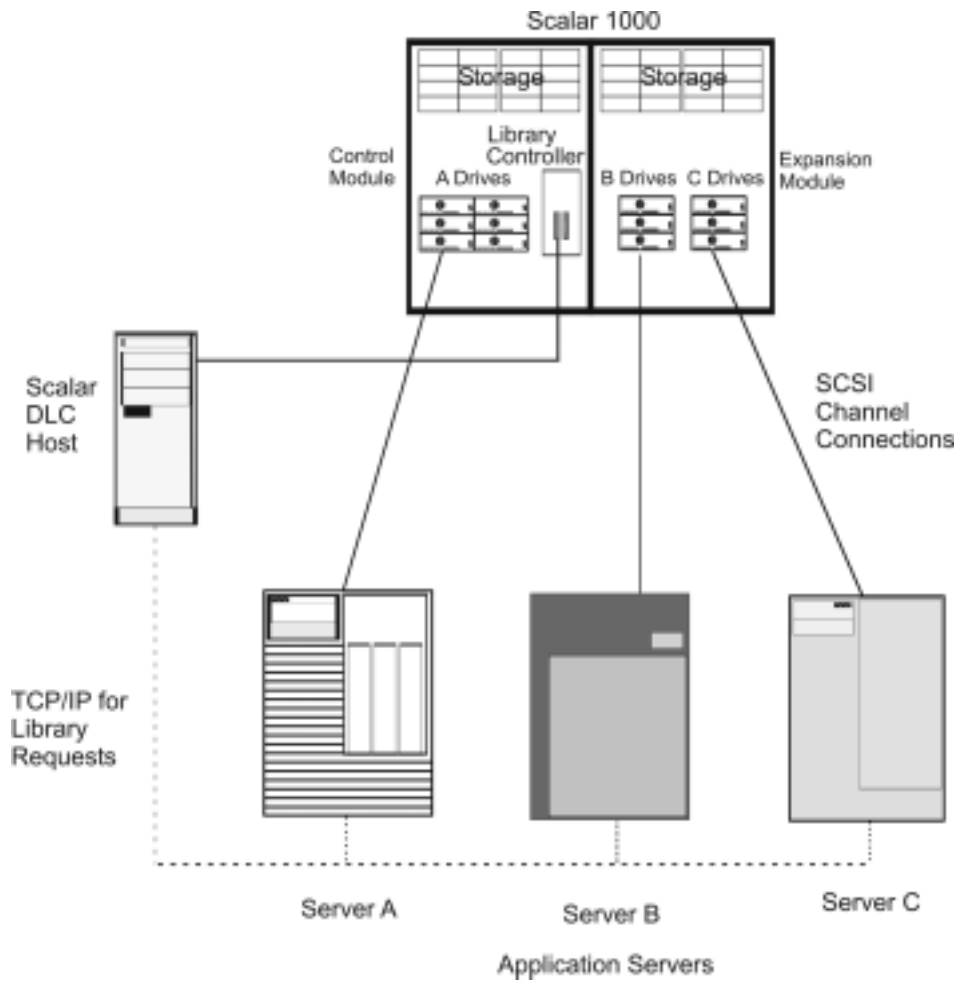


Figure 2-4 Network Attachment

Remote Management Unit

The factory-installed Remote Management Unit (RMU) in each system uses a standard web browser for remote library access.

The supported browsers are:

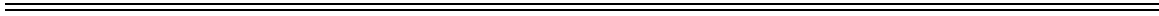
- Microsoft Internet Explorer version 4.0 and above
- Netscape Navigator version 4.7 and above

With an RMU, you are able to do the following:

- Update RMU firmware
- Access the library status
- Make configuration changes

-
-
- Access the library Operator Panel
 - Access Scalar 1000 documentation
 - Retrieve library command and event logs

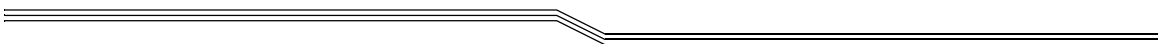
The RMU supports Simple Network Management Protocol (SNMP) version 2.0 and acts as an SNMP-server. The RMU acquires Tape Alert 3.0 compatible information from the library over the serial interface port and sends that information to a SNMP manager. The RMU also detects a power loss and generates a SNMP trap for notification. For additional information, refer to the *Scalar 1000 Operator Guide*.

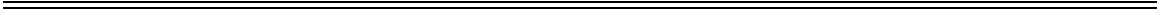


3

System Configurations


Overview	3-3
Configurations	3-4





Overview

This chapter describes the Scalar 1000 library component configurations.

 **Note**
Service requires
48 in. (1219 mm)
access.

The Scalar 1000 can consist of one to four modules (a Control Module and up to three Expansion Modules). See Table 3-1 for module, tape drive, and tape cartridge configuration information.

Table 3-1 Library Configurations

	LTO/DLT/SDLT			AIT		3590	
	Drives	Cartridges		Drives	Cartridges	Drives	Cartridges
	LTO/DLT/SDLT	LTO	DLT/SDLT				
Control Module	1–6	188	158	2–12	237	1–2	158
	7–12	140	118				
Control Module and 1 Expansion Module	1–6	438	368	2–12	552	1–2	368
	7–12	390	328	14–24	492	3–4	328
	13–18	342	288			5–6	288
	19–24	294	248			7–8	248
Control Module and 2 Expansion Modules	1–6	688	578	2–12	867	1–2	578
	7–12	640	538	14–24	807	3–4	538
	13–18	592	498	26–36	747	5–6	498
	19–24	544	458			7–8	458
	25–30	496	418			9–10	418
	31–36	448	378			11–12	378
Control Module and 3 Expansion Modules	1–6	938	788	2–12	1182	1–2	788
	7–12	890	748	14–24	1122	3–4	748
	13–18	842	708	26–36	1062	5–6	708
	19–24	794	688	38–48	1002	7–8	668
	25–30	746	628			9–10	628
	31–36	698	588			11–12	588
	37–42	650	548			13–14	548
	43–48	602	508			15–16	508

Configurations

This section contains figures that show the four possible Scalar 1000 component configurations.

- Basic Library with No Expansion Modules, Figure 3-1
- Library with One Expansion Module, Figure 3-2 on page 3-5
- Library with Two Expansion Modules, Figure 3-3 on page 3-6
- Library with Three Expansion Modules, Figure 3-4 on page 3-7

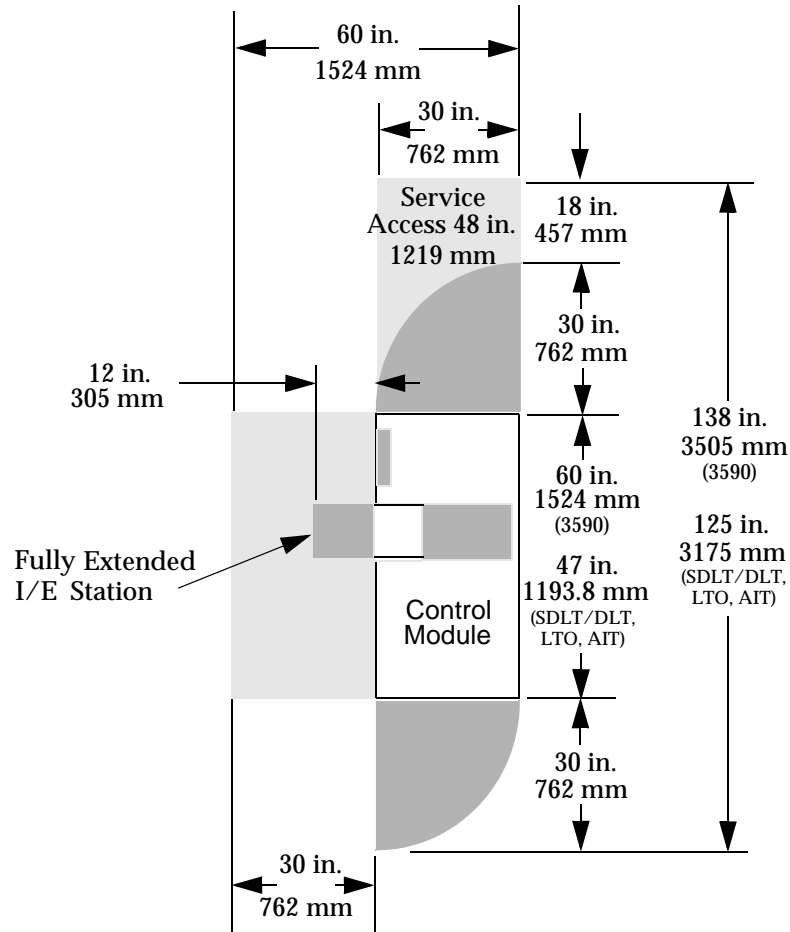


Figure 3-1 Basic Library with No Expansion Modules

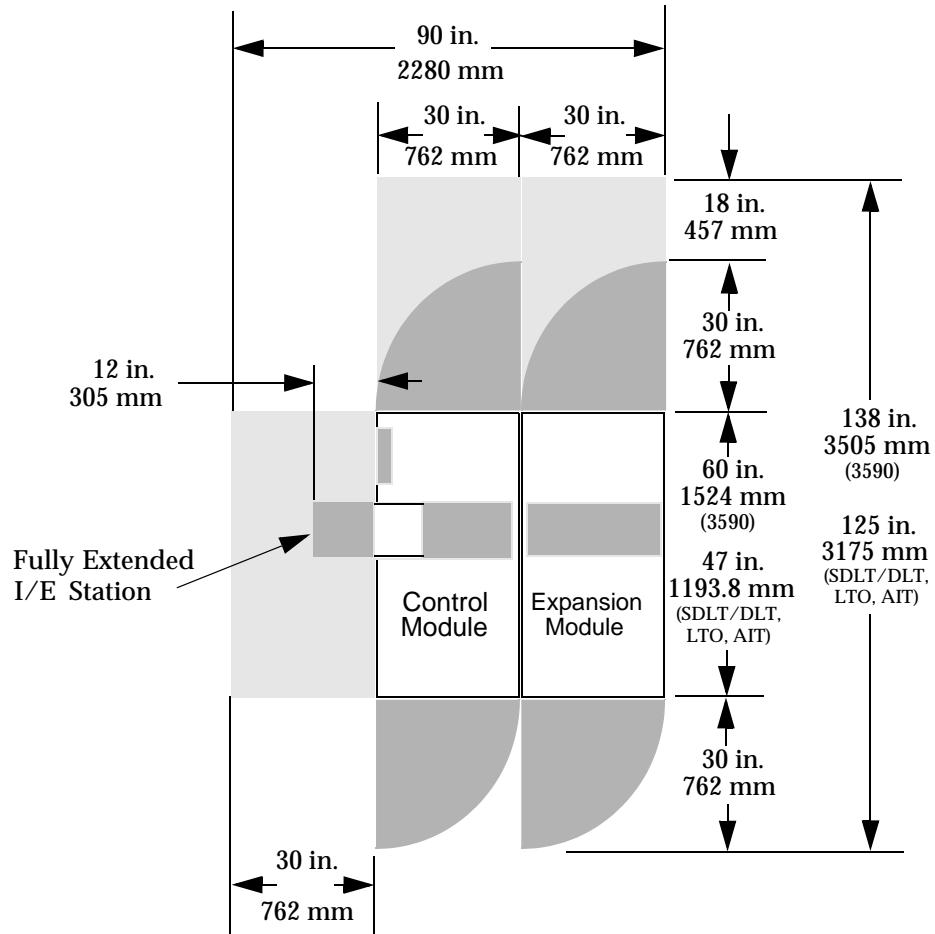


Figure 3-2 Library with One Expansion Module

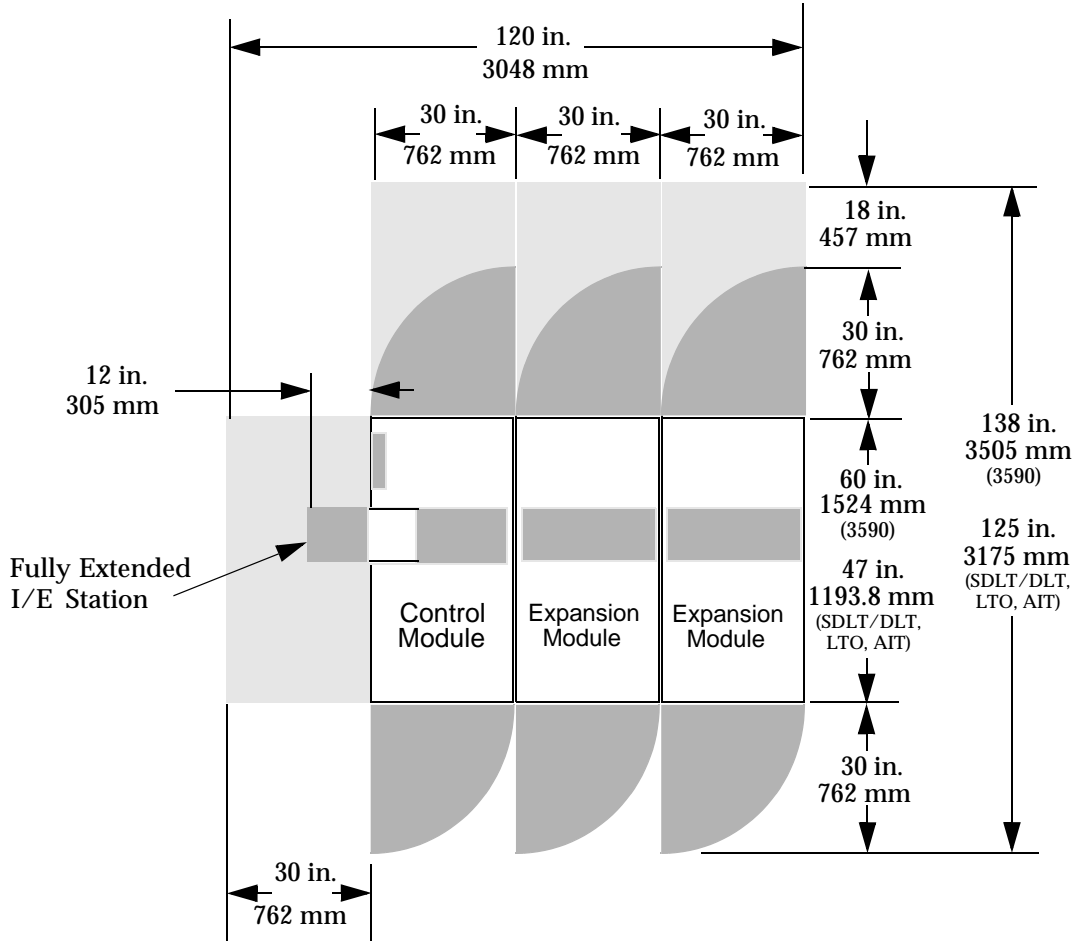


Figure 3-3 Library with Two Expansion Modules

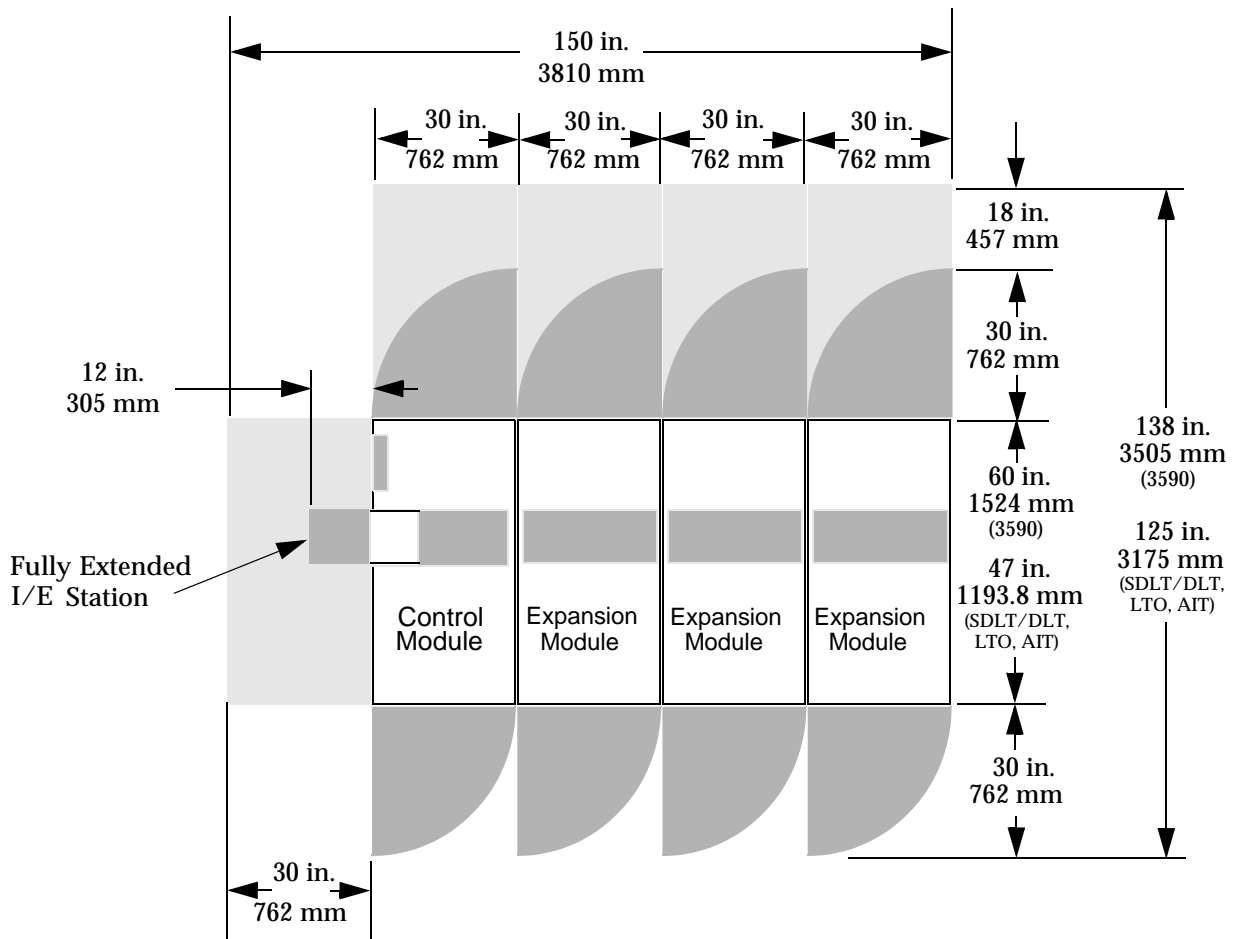
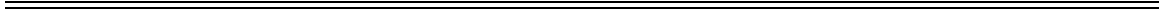


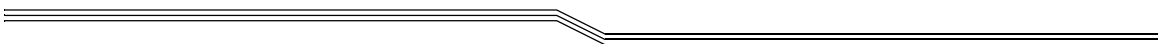
Figure 3-4 Library with Three Expansion Modules

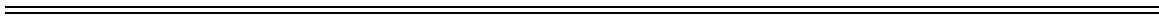


4

System Specifications

Overview	4-3
Performance Specifications	4-3
Environmental Specifications	4-3
Electrical Specifications	4-4
Physical Specifications	4-5
Foot Pad Positions	4-6
Barcode Requirements	4-7





Overview

This chapter contains performance, environmental, electrical, and physical specification information for the Scalar 1000 library. The information is organized as follows:

- *Performance Specifications* on page 4-3
- *Environmental Specifications* on page 4-3
- *Electrical Specifications* on page 4-4
- *Physical Specifications* on page 4-5
- *Foot Pad Positions* on page 4-6
- *Barcode Requirements* on page 4-7

Performance Specifications

The Scalar 1000 has peak actions per hour of 350 exchanges and peak time to mount media of 6 seconds.

Table 4-1 Performance Specifications

Avg Actions per Hour	Peak Actions per Hour	Avg Time to Mount Media	Max Time to Mount Media
290	350	5 Seconds	6 Seconds

Environmental Specifications

Table 4-2 lists the key environmental information for the Scalar 1000 library. Specifications do not include drives.

Table 4-2 Environmental Specifications

Temperature	Humidity	Altitude	Maximum BTU/Heat Dissipation
Operating: 60° - 90° F (16° - 32° C)	Non-condensing Operating: 15 - 75%	No Limit	0.44 kwh 1502 BTU
Recommended: 70° - 75° F (21° - 24° C)	Recommended: 45 - 65%		

Electrical Specifications

The electrical specifications for the Control Module (CM) and Expansion Module (EM) are shown in Table 4-3.

Table 4-3 Electrical Specifications

Module	Voltage ^a (Single Phase)	kVA	United States Power Connector	International Power Connector
CM/EM	115 - 230	1.6	L5 - 20	Plug is customer supplied

a. Connect an 18 gauge stranded copper wire from the CM to earth ground.

The typical power consumption for a full-height/half-height drive and the SNC 5100 is shown in Table 4-4.

Table 4-4 Typical Component Power Consumption (Worst Case)

Component	Status	Watts	BTU
Full-Height Drive	Read/Write	71.5	244
	Idle	53.0	180
Half-Height Drive (Two in sled AIT)	Read/Write	53.8	263
	Idle	24.6	120
SNC 5100	Read/Write	33	113

The EMs only need power if there are drive bays installed.

Physical Specifications

The physical specifications for the library modules are shown in Table 4-5.

The floor must support point loads exerted by the leveling pads of up to 86.42 lb./in.².

In addition to being dust-free, physically, chemically, and acoustically appropriate, the flooring must meet the insulation resistance specifications. The insulation resistance between the floor surface and earth ground must be 1×10^5 to 1×10^8 ohms to prevent system failure or electrical shock. Sufficient resistance is achieved by using antistatic, nonconducting floor tile with a resistance of 1×10^6 to 1×10^9 ohms. If necessary, provide an appropriate connection to the metal portion of the ground plane.

The Scalar 1000 has four point loads on the CM and EM.

Table 4-5 Physical Specifications

Height	Width	Depth	Maximum Weight	Distributed Load	Point Load
Control Module					
72 in. 1828.8 mm	29.6 in. 751.8 mm	47 in. 1193.8 mm (SDLT/DLT/ LTO/AIT) 60 in. 1524 mm (3590)	1052 lb. 477 Kg	85 lb./ft ² 414 Kg/m ²	86.42 lb./in. ² 421.88 Kg/m ²
Expansion Module					
72 in. 1828.8 mm	29.6 in. 751.8 mm	47 in. 1193.8 mm (SDLT/DLT/ LTO/AIT) 60 in. 1524 mm (3590)	817 lb. 371 Kg	66.00 lb./ft ² 322.2 Kg/m ²	67.11 lb./in. ² 327 Kg/m ²

Foot Pad Positions

The Scalar 1000 foot pad positions are shown in Figure 4-1. The foot pad positions are the same for the CM and EM.

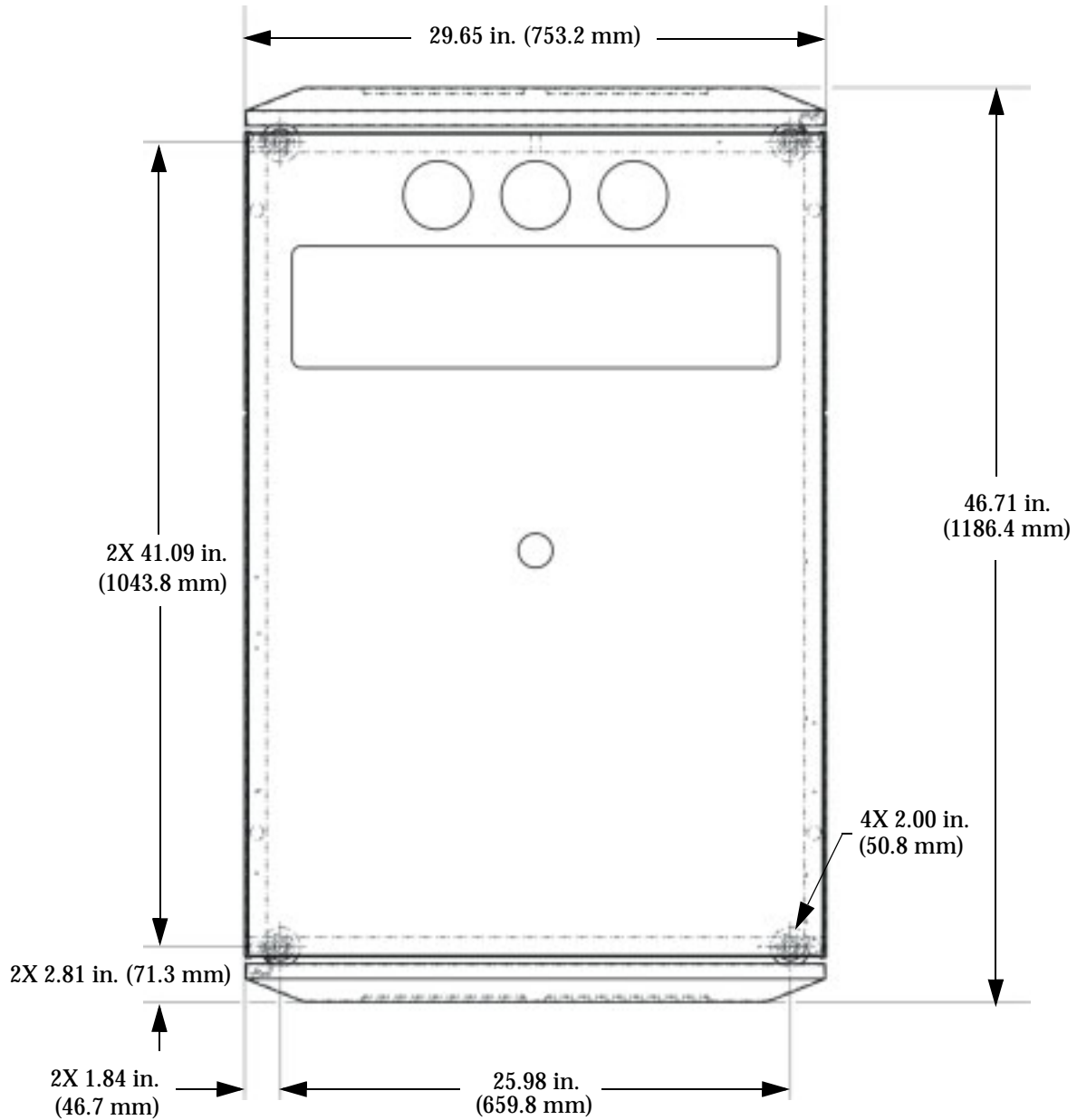


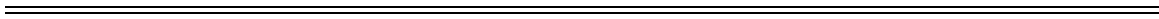
Figure 4-1 Foot Pad Positions (Control Module and Expansion Module)



Barcode Requirements

For customers who want to print barcode labels, the labels must meet the ANSI MH10.8M-1983 standard and other additional requirements. The following list outlines the ANSI MH10.8M-1983 standard and additional requirements:

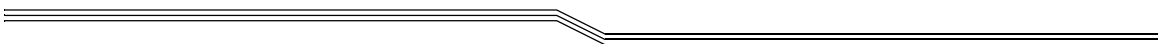
- ANSI MH10.8M-1983 Standard
 - Number of digits:
 - 5 - 16 in extended mode
 - 6 (7 or 8 including media characters) in default and mixed media modes
 - Background reflection: at least 25 percent
 - Print contrast: at least 75 percent
 - Ratio: at least 2.2
 - Module: 250 mm
 - Print tolerance: ± 57 mm
- Additional requirements
 - Length of the rest zones: 5.00 mm minimum
 - No black marks can be present in the intermediate spaces or rest zones
 - No white areas may be present on the bars
 - A nine digit bar code must not match the serial numbers of any frames of the unit, otherwise it will be ignored
 - Each label should be applied in the upper right corner of the tape cartridge recess (when oriented vertically)

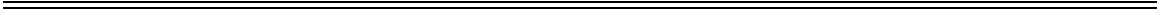


5

Site Preparation

Overview	5-3
Packaging Dimensions	5-3
General Information	5-4
Physical Environment	5-5
Access Conditions	5-5
Additional Comments	5-9





Overview

This section solicits pertinent information about the delivery site. Record all requested general information.

Packaging Dimensions

The Scalar 1000 module packaging sizes are as follows:

- Control Module (CM) packing size:
65 in. L (1651 mm) x 35 in. W (889 mm) x 78 in. H (1981 mm) and mounted on 150 lb. palettes.
- Expansion Module (EM) packing size:
65 in. L (1651 mm) x 35 in. W (889 mm) x 78 in. H (1981 mm) and mounted on 150 lb. palettes.

General Information

 **Note**

Place any additional information in *Additional Comments* on page 5-9.

Customer Name:

Mailing Address:

Shipping Address:

Sales Contact:

Telephone:

ADIC Sales Rep:

ADIC Account Mgr:

Installation Contact:

Telephone:

Target Installation Date:

Target Operational Date: _____

Physical Environment

Place any additional information in *Additional Comments* on page 5-9.

Room Dimension: _____

Ceiling Projection _____

Floor Type _____

Floor Load Capacity _____

Fire Protection _____

Access Conditions

Access to Scalar 1000 library room (elevator, stairs, door widths, etc.):

Dimensions and Location of Smallest Door or Opening:

Loading Dock Specifications (dock height, type of ramps,
weather protection, etc.):

Semitrailer Accessibility (Y or N): _____

Preferred/Required Local Carrier Company:

Where Can Trailer Be Left for Staging?

Availability of Material Handling Equipment:

Location for uncrating:

Preferred Time of Day for Unloading and Moving Materials:

Off Hours/Weekends Accessibility for Installation Team:

Procedure for Obtaining Building Passes:

Procedure for Scheduling the Elevator, Loading Dock, etc.:

Waste Disposal Considerations:

Bargaining Unit Considerations:

Other Considerations:



Additional Comments

Record any additional information from other pages. For reference purposes, note the page number with the information. Add and number additional sheets as necessary.

Index

- A -

Access Conditions	5-5
Additional Comments	5-9
Assistance with Problems	1-4
Associated Documents	1-4
ATAC	1-4

- B -

Barcode Requirement	4-7
---------------------------	-----

- C -

Cartridge Accessor	2-3, 2-6
Chapter Organization	1-3
Control Module	2-3

- E -

Electrical Specifications	4-4
Environmental Specifications	4-3
Expansion Module	2-3

- F -

Foot Pad Positions	
Control Module	4-6
Expansion Module	4-6

- G -

General Description	2-3
General Information	5-4

- I -

Insert/Eject Magazines	2-3
------------------------------	-----

Insert/Eject Station	2-7
Intended Audience	1-3

- O -

Operator Panel	2-3
----------------------	-----

- P -

Performance Specifications	4-3
Physical Environment	5-5
Physical Specifications	4-5

- R -

Remote Management Unit	2-13
------------------------------	------

- S -

SAN Connectivity	2-8
Scalar DLC	2-11
SCSI Connectivity	2-10
SNMP	2-13
Specifications	
Electrical Specifications	4-4
Environmental Specifications	4-3
Performance Specifications	4-3
Physical Specifications	4-5
Storage Cells	2-3

- T -

Tape Cartridges	2-7
Technical Assistance	1-4

