CERTANCE

LTO Autoloader Barcode Reader

Installation Guide

LTO Autoloader Barcode Reader

Contents

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Required tools:
Small flat-blade screwdriver
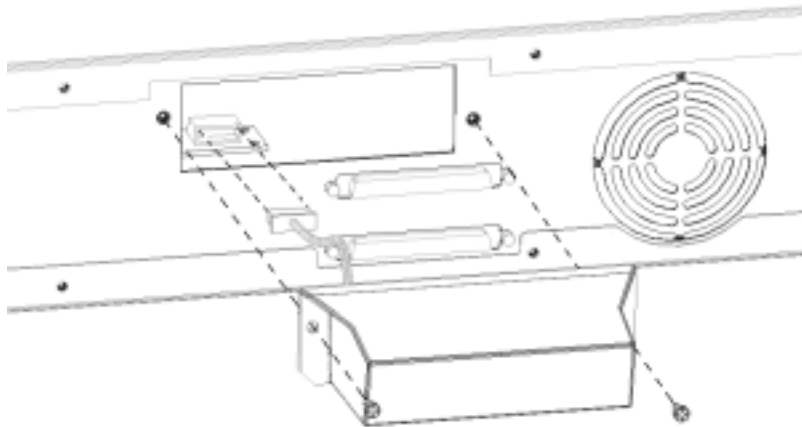
Mounting instructions:
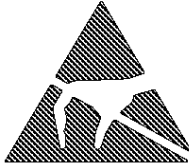
ATTENTION!
ESD Sensitive Component.
Please touch unit cover or rear panel before installing
the barcode reader to avoid electrostatic discharge.

1. The barcode reader is to be mounted on the rear side of the autoloader.

2. Power down the autoloader
3. Remove the SCSI cable(s) and power cord from the rear panel of the autoloader and disconnect the power cord from the outlet.
4. Remove the cover plate from the rear panel and save the screws. Store the cover plate; you may use this plate later if you remove the barcode reader.
5. Orient the barcode reader in front of the slot. There is only one correct position. Check to make sure that the holes align.
6. Connect the cable to the barcode controller outlet.
7. Attach the barcode reader with the screws you saved.
8. Reconnect the SCSI cables and power cord to the autoloader.

Using the Barcode Reader

The barcode reader is controlled through the host software. There is no user interaction, and the Operator Panel does not indicate that a barcode reader has been added. When you next power up the autoloader, the barcode reader is automatically enabled for scanning.

Barcode labels

The barcode reader can only operate if barcode labels are present on the tape cartridges. Make sure that only labels complying with the appropriate barcode label specification are used (see section below).

Removing the Barcode Reader

1. Power down the autoloader
2. Remove the SCSI cable(s) and power cable from the rear panel. Then disconnect the power cable from the outlet.
3. Remove the screws that attach the barcode reader to the rear panel.
4. Unplug the barcode reader connector from the controller outlet.
5. Replace the cover plate on the rear panel.

Bar Code Label Specification
For LTO Ultrium 1 Cartridges

About this Specification

This document defines format and contents of the external barcode label to be used on LTO cartridges. The specifications are defined to both standardize labels and allow users the option of purchasing or printing their own labels. This specification contains the following information about the bar code labels:

- Symbology
- Bar code characters
- Encodations
- Quiet zone
- Optical specification
- Label dimensions
- Volume identifier formats
- Reading area
- Label Orientation on Cartridge

Symbology

The LTO Ultrium cartridge label uses the bar code symbology of USS-39. A description and definition of this symbology is available from the Automatic Identification Manufacturers (AIM) specification Uniform Symbol Specification (USS-39) and the ANSI MH10.8M-1993 ANSI Barcode specification.

Bar Code Characters

The bar code string consists of a start character, eight alphanumeric characters, and the stop character. Quiet zones precede and follow the start and stop characters. The first six characters may be any combination of upper case A through Z or 0 through 9 (for example, ABC123) to identify the cartridge volume. The last two characters are determined by the LTO Ultrium cartridge media type (for example "L" for LTO Ultrium and "1" for tape cartridge generation or drive manufacturer-unique identifier).

Only upper case alpha A through Z or numeric 0 through 9 characters are allowed.

Human readable characters may be used, provided there is not a conflict or interference with the automation code. The user specifies the format, colors, and location of the human readable characters.

Encodation

Refer to the AIM Uniform Symbol USS-39 specification for the description and format of the start character, identifier characters, and stop character.

Quiet Zone

The quiet zones are the areas preceding the start and after the stop characters. They are clear of any printing or reflective properties that could cause spurious reflections. The quiet zones are further defined in the AIM Uniform Symbol USS-39 specification.

Optical Specification

The optical specifications for the bar code labels are listed below.

- Use the white calibration standard to calibrate the print contrast of the Mcbeth PCMII. Be sure the filter select switch is on position A for all calibration and measurements.
- The reflectivity of the white background (RW) is the reflectivity measured in the center of narrow spaces using the Mcbeth PCMII print contrast meter. The RW must be between 70% and 85%. At this measurement, isolated print defects and edge roughness are avoided.
- A spot is defined as an area anywhere within the white background in which the reflectivity is less than 65%. Spots may not be greater than 0.004 inches (0.102 mm) enclosed diameter. There may be no more than five spots in the bar code area per label. Spots may not be any closer to each other than 0.01 inches (0.254 mm).
- The reflectivity of the black areas (RB) may be measured anywhere within any black area on the bar code. The print contrast signal (PCS) is defined as (RW-RB)/RW and is measured using the Mcbeth PCMII print contrast meter. PCS must be a minimum of 0.85. Using the PCS measurement will avoid isolated print defects and edge roughness.
- A void is an area within a black area where the PCS is less than 0.85. No voids may be greater than 0.004 inches (0.102 mm) enclosed diameter. There may be no more than five voids in the bar code area per label. Voids may not be any closer to each other than 0.01 inches (0.254 mm).

Note: For additional optical requirements and measurement techniques, refer to the AIM Uniform Symbol USS-39 specification.
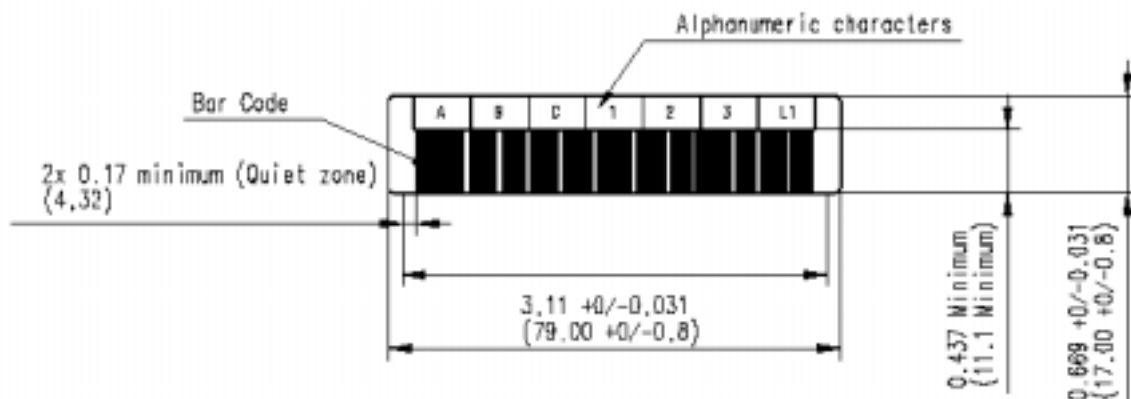
Label Dimensions

The following figure shows the bar code label dimensions.
Note: Dimensions are given in inches with millimeters in parentheses.

Character orientation: horizontal (recommended)
Barcode orientation: bottom

Recommended supplier: EDP/Colorflex

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The following table lists the bar code label dimension specifications.

Specification	Dimension
Symbol height	0.44 inches (11.1 mm) minimum as measured to the inside of the edge roughness[a]
Wide to narrow ratio	1:2.75
Narrow element width	0.017 inches + 0.001/–0.003 inches (0.432 mm + 0.03/–0.076 mm)
Nominal width of wide spaces and bars	0.047 inches (1.188 mm)
Inter character gap	0.017 inches + 0.001/–0.003 inches (0.432 mm + 0.03/–0.076 mm)
Bar code element width maximum	Measured to the outside of the edge roughness[a]. Space width is then the distance between bar maxima.
Quiet zone at the beginning and end of printed bar code string	10× narrow width = 0.17 inches (4.32mm)
Total bar code string length, including quiet zones	Nominal 2.917 inches (74.088 mm)
Bar code string direction	May be printed in either direction on the label but must begin/end with a valid start/stop character (✱)
Edge roughness[a]	0.0015 inches (0.038 mm) maximum
Tolerances	0.XXX± 0.005 inches, 0.XX± .0.03 inches) (0.XXX± 0.127 mm, 0.XX± 0.762 mm)
Variation between all wide bars, white and black	Less than ± 0.0015 inches (0.0381 mm)
Variation between all narrow bars, white and black	Less than ± 0.0015 inches (0.0381 mm)
Print side	Print the bar code string on the label so it is on the side of the label towards the hub
Label stock dimensions	3.110 x 0.669 inches (79 × 17 mm)[b]
Minimum length for quiet zones, start-stop and data characters	Nominal 2.917 inches (74.088 mm)
Minimum width	No less than 0.059 inches (1.5 mm) narrower than the cartridge label recess width
Corner cut	0.059 inches (1.5 mm radius)

[a] The edge roughness is defined as the transition encountered as a horizontal line is moved vertically from all black to all white. The bar code edge is defined as the edge of all printed area attached to the bar.

[b] Must fit within the label recess on the face of the cartridge without curling up on the sides or ends.

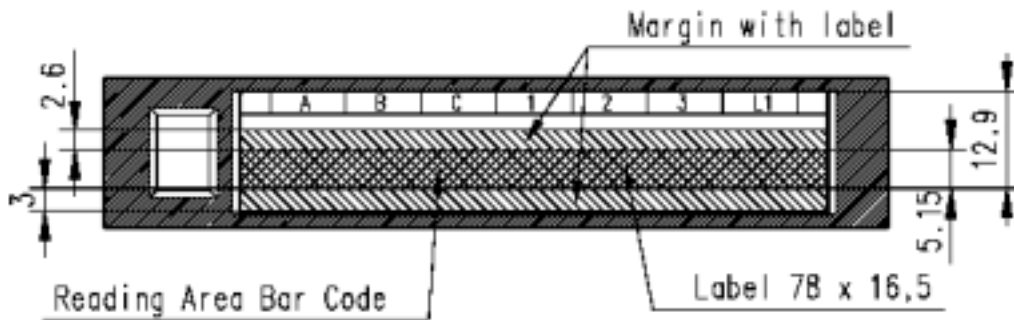Note: The LTO Ultrium label dimensions are derived using the AIM USS-39 specification.

Volume Identifier Formats

- The volume identifier only uses ASCII characters A through Z (41h-5Ah), 0 through 9 (30h-39h), and the combinations of "CLN" and "DG {space} " as described below.
- The prefix "CLNvnnL1"is reserved for cleaning cartridges. The "v" field is an alphanumeric field to identify a drive unique cleaning cartridge. The "nn" alphanumeric field is used to track individual cleaning cartridge activity (for example, usage and life). When the drive requires cleaning, it will request loading of the unique type cleaner cartridge.
- Diagnostic/Service cartridges use the prefix "DG{ space} vnnL1". The "v" field is an alphanumeric field to identify a drive-unique diagnostic cartridge, if required. The "nn" alphanumeric field identifies a specific diagnostic cartridge volume.
- The volume identifier field consists of six left-justified alphanumeric characters as specified in SCSI-3 Medium Changer Commands (SMC) ANSI NCITS 314-199X.
- The media identifier characters "Lg" are controlled characters. The "L" designates the LTO Ultrium type of cartridge. The next character "g" (alphanumeric) designates the generation of the LTO Ultrium cartridge.

Reading area

Due to mechanical tolerances the barcode reader will read in a defined area with a height of 5,15 mm (see figure below). This area must contain barcode information only and should not contain any character information.

Label Orientation on Cartridge