RFID
Radio Frequency IDentification
Product Information

What is RFID Technology and How is it Used in a Library?

Radio Frequency Identification is a system in which a special reader uses radio waves to identify a unique characteristic of an item. The RFID reader communicates with an RFID tag attached to an item, then sends the digital information stored on the RFID tag’s microchip to computer software. RFID software can be adapted to assist with many operations including communication with existing software.

This process is ideally suited to a library situation, where hundreds of items an hour must be identified as they are checked in and out and recorded in the library’s circulation system. An RFID tag can be attached to each library item and programmed with a unique identifying number, usually its barcode number. Reader antennas attached to the circulation desk and return area can identify these items as patrons check them out or return them. The special efficiency of this process is that it can often take place with little or no assistance from library staff. Unlike barcode systems, where each item must be scanned individually, an RFID antenna is able to read multiple items virtually simultaneously. A patron stacks the items to be borrowed on the RFID reader/antenna along with a library card, the transaction is recorded with a single command, the patron is on their way allowing library staff to invest their time in duties more valuable than repetitive handwork.

The Lib~Chip RFID Label and Reader/Antenna

Libramation’s Lib~Chip RFID label is produced exclusively for library materials. With its ability to hold substantial amounts of information, the label is a cost-effective method for materials management, and is eventually expected to replace the barcode. Our Lib~Chip label or tag is paper thin and flexible, which allows it to be attached to each item in a library’s collection. The tag is made up of a microchip that stores bibliographic data, including a unique ID number to identify each item, and an etched tag antenna that allows the information to be transmitted to a workstation reader/antenna.

The workstation reader and antenna come in different designs to meet the library’s specific needs. The reader provides the power to the antenna so that it will generate a Radio Frequency field. When an RFID tag passes through this field, the reader decodes the information stored on the chip and sends it to a computer that communicates with the library’s automation system.
What Libramation RFID Can Do

Streamline Circulation

Libramation’s RFID Staff Workstations and Return & Sorting System make circulation procedures easier and reduce repetitive motion injuries by decreasing the amount of materials handed by staff. Patrons simply place their items and library card on the circulation-desk target area; Libramation’s Lib~Digit software reads the RFID tags, connects to the integrated library system (ILS), checks for any circulation blocks, signs the materials out to the patron in the ILS, changes the items security status and prints a receipt, all in a matter of seconds. Library staff is not required to handle any material, but is there to monitor transactions and is available to assist patrons with any concerns. Materials are checked in by library staff using the staff workstation installation, or checked in and sorted automatically via the Libramation ACT-Return & ACT-Sorting Unit. As patrons place an item into the ACT-Return unit, the system identifies the item, connects to the automation system, checks the item in and resets the security status. As the item continues through to the sorter, items are identified for special circulation statuses such as on hold or inter-library loan and the call number is identified. Items are dropped into assigned bins based on circulation status or shelving location via a conveyor system.

Patron Privacy and Independence Using the Lib~Chip Self-Check Stations

Libramation’s Lib~Chip Patron Self-Check stations, provide patrons with a confidential, user-friendly way to sign out and return their own materials. Patrons can also access their accounts; review and renew materials currently borrowed and see what holds are available. This system reduces handwork for library staff and frees staff for other patron-related services.

Effective Collection Maintenance and Control Using the Lib~Chip Lib~Scan

Libramation’s Lib~Scan Hand Held Unit is an excellent tool for inventory control and other collection maintenance activities. Using this portable unit, staff need only walk along the shelves to perform inventory or complete other library tasks. With program parameters set via the touch screen or keypad on the unit, the Hand Held can assist staff in finding lost items, locating items on hold, reorganizing mis-shelved items or perform any number of other data inquiries. The Lib~Scan can program RFID tags and if necessary, staff can use the Lib~Scan to sign materials out to patrons without having to be at a workstation.
Lib~Chip RFID Features

RFID Security – The EAS Bit / AFI Field

A key feature of our Lib~Chip is that Philips, in their design, have included both a built-in EAS (Electronic Article Surveillance) bit and the AFI (Application Field Identifier) field. Both of these features can be changed during the circulation process to determine the security status used in the security gates. Libramation’s Lib~Chip can accommodate data tracking requirements as well as protect against the un-authorized removal of materials. With Lib~Chip there is no need for a second technology, such as EM (Electro-magnetic) strips to provide security. Our Lib~Chip Easy-Check, Circ-Desk, Book Drop Assembly, and ACT-Return units can effortlessly set the EAS Bit to the correct setting or program the AFI to read C2 which is the correct setting for allowing items to leave the library.

Existing EM and RF security labels will not affect the readability of the RFID tag. Because the Lib~Gates only use the EAS bit or AFI information to detect unauthorized materials being removed from the library, security labels currently on the materials will not cause any false alarms with the security gates.

Patron Card Functionality

Libraries do not need to change the patron cards they are currently using as they move to RFID. The library has the option of using the scanners which already exist at their circulation stations. Our Lib~Digit software is able to handle multiple patron card formats including standard barcodes, RFID tags, magnetic stripe or smart cards and/or mini keycards.

Circulation System Compatibility

The Lib~Digit software connects to most Library Automation Software using SIP, SIP2, and NCIP (available Feb. 2007). This includes programs such as SirsiDynix’s Unicorn, and Horizon as well as Innovative Interfaces, Polaris and many others. All transactions are updated in real time so that all circulation policies and circulation blocks are followed.

The computer running the Lib~Digit Staff Workstation Software requires a connection to the library’s local area network with the appropriate network and database permissions. This can be accomplished with a standard Ethernet or wireless connection.

Off-line Capabilities

In the event of an ILS and/or network failure, the Lib~Digit software will allow staff and patrons to continue to check out and return materials. This means that there is a minimal interruption for library staff should this occur.

Libramation’s RFID Lib~Digit Software maintains an independent database of the items borrowed and/or returned as well as the Patron name and barcode number on a designated workstation. In the event of an ILS and/or network failure, the Lib~Digit software will allow library staff to continue to check out/in materials as normal. As materials are signed out, if the material has been borrowed and stored in the database, the material is signed out to that patron using the loan period stored in the independent database. In the event that an item has never been signed out, a default loan period is assigned. This database can also store items that are not allowed to be borrowed, so that in case of an off-line situation, this item will be blocked. As the material is signed out, the security status of the item is changed, allowing the patrons to remove the items from the library without alarming the gates. There is no restriction on the quantity of records that can be stored on the computer. The information updating the circulation database uploads to the ILS as soon as communication has been re-established.
**Multi-piece Items or Kits**

Libramation’s Lib~Digit Software has a feature for circulating materials that contain multiple pieces (i.e. Book and CD or, multiple CDs or DVDs). When programming materials for RFID, each piece receives a RFID tag which is connected to the items single barcode number. The librarian chooses to program an item with multiple pieces by clicking on the multiple items button and choosing the number of items in the kit. They then proceed to place one item at a time on the programming antenna and program each item with the same barcode number. During the programming of the tags, each tag is encoded with the number of items connected to the single MARC record and the item barcode number.

When these items circulate, the Lib~Digit software identifies the number of items that should be present by reading the RFID tag and checks to ensure all the pieces are there. If it does not find the correct number of items, a message notifies the person completing circulation that a piece is missing. This is extremely useful during the return process, as library staff no longer have to open each kit or case to see if all the items are present.

**SIP Concentrator**

Each of our patron self-check stations and staff workstations require a SIP connection to the Integrated Library System. This improves the speed of communication between the library program and the RFID software. Some library systems require libraries to purchase a SIP license for each individual workstation connecting to the ILS. The library has the option of installing the SIP Concentrator module to alleviate this requirement. This module allows up to 15 RFID workstations to connect to a computer that then communicates with the SIP Server. This greatly reduces the cost to the library by requiring only one SIP2 license to the SIP Server for each 15 workstations. The Lib~Digit software allows for files that are used for display, receipts and some messages to be stored on the SIP Concentrator, allowing for these changes to be made centrally.
Lib~Chip RFID Tags

The Lib~Chip RFID label is produced exclusively for use in library materials. With the ability to hold substantial information in a small sized label, the Lib~Chip is a cost effective method for material management, ultimately replacing the bar code.

NXP Semiconductors RFID Microchips

The “Chip” on our Lib~Chip tag is manufactured by NXP Semiconductors (formerly Philips) of the Netherlands. It is fully compatible to ISO 15693 and ISO FDIS 18000-3 standards. NXP is one of the worlds leading electronics companies and an innovative leader in RFID chip design and manufacture. Over 40 library consortiums around the world, including Singapore, with over 5 million tagged items, currently use more then 3 billion of the I-Code RFID chips.

Libramation offers three choices of NXP microchips for the RFID tags. The library may purchase the standard SLI chip we have historically offered in the past or the library may consider either the SLI-S or SLI-L microchips that provide an enhanced memory and security option.

I•Code SLI Chip

The SLI Chip allows information to be stored on the microchip and then provides the option of locking some or all of the data on the chip. Once this information is locked onto the chip, the information cannot be changed. Other RFID equipment may read the information, but no information can be changed. The EAS (Electronic Article Surveillance) Security Bit is one portion of the microchip that must remain unlocked. The library is required to change its status as items are signed out and returned, as that is the bit of information that is used to check materials as patrons go through the security gates.

I•Code SLI-S CHIP

The SLI-S chip allows for more information to be stored on the microchip, having 2048 bits of memory. The microchip offers an enhanced security option to the smart label market – password protection. It lets you tailor the security level to meet your own needs. For example, you can prevent unauthorized access to sections of the on-chip memory or allow access while only authorized parties can modify the data stored. Similarly, the password protection can prevent people from illicitly switching off the EAS anti-theft functionality or even reading any information on the chip. In addition, both microchips support requirements such as a kill and privacy commands.

I•Code SLI-L CHIP

The SLI-L chip is designed specifically for libraries and to only store the necessary data as identified by the Dutch Danish Model with only 512 bits of data. The microchip offers an enhanced security option to the smart label market –password protection on the EAS Bit, Privacy Mode and Label Destroy. This prevents people from illicitly switching off the EAS anti-theft functionality or even reading any information on the chip. In addition, both microchips support requirements such as a kill and privacy commands.

Lib~Chip RFID Labels

The Lib~Chip label is a single label that includes the antenna, microchip and label cover. The labels come equipped with either the Philips Semiconductors I•Code SLI microchip or I•Code SLI-S microchip. The antenna and microchip are attached to the label using the “Flip Chip” bonding process making Libramation’s Lib~Chip RFID tag a single piece. This means that there is no additional label cover that needs to be applied to the label, reducing the amount of time needed for tagging new materials and the conversion period.
Libramation’s Lib~Chip RFID tags function with all types of formats and media and does not damage the media. There are several types and sizes of RFID tags available for purchase to be used on various media. On CDs and DVDs that require a smaller RFID tag, a Booster tag can be attached to one-sided CDs or DVDs. The Booster tag provides an additional antenna that goes around the outside edge of the item. This antenna picks up the Radio Frequency Waves easier, making detection considerably easier.

**Lib~Chip Label Specifications**

- **RFID Antenna:** Philips Semiconductors I•Code SLI microchip or I•Code SLI-S microchip
- **Label Assembled by:** X-ident and/or RAKO Security
- **Antenna:** Etched Copper or Aluminium
- **Antenna Bonding Method:** Flip Chip
- **Adhesion:** Permanent
- **Cover Material:** Paper
- **Printability:** Custom printed 4 color and/or duplicate thermal direct barcode

Lib~Chip Label Dimensions:

A. **Rectangular Book:** 54 x 86 mm/2.13 x 3.38 inch  
B. **Square Book:** 55 x 55 mm/2.17 x 2.17 inches  
C. **Videocassette:** 21 x 148 mm/0.8 x 5.8 inches  
D. **CD/DVD/Audiocassette:** 40 mm/1.57 inches diameter
Label Purchase Options

Libramation provide the following options when purchasing RFID Tags. The library may wish to order these in combination depending on their specific needs.

Pre-Printed Programmable Labels

A blank label may create curiosity, so we recommend printing your library information and/or logo on the label to assist in reducing potential patron vandalism. This, combined with the thickness of the RFID chip (measuring only .00012 of a square inch / 0.8 square millimetre) and the flexibility of the antenna bonding process, allows a custom four (4) color label as well as a thermal barcode (optional) to be printed directly on the RFID tag without difficulty. These labels can be programmed by using the Lib~Digit RFID Conversion Software, the Lib~Digit Circulation Desk Software, or the Lib~Assist hand held unit. The barcode of the item is easily programmed onto the tag simply by scanning it into the software.

Pre-Printed, Pre Programmed Labels

These pre-printed labels come as described above with a barcode number already programmed onto the label. The library has the option of having the barcode printed onto the RFID tag with the library information if desired.

Pre-Printed, Pre-Programmed Labels With An Additional Barcode Label

Libramation offers the library the option of purchasing pre-printed, pre-programmed labels with an accompanying barcode. These labels are recommended for the Technical Services Department when cataloguing new materials. Because the RFID tag is pre-programmed and has a matching barcode, new materials only need to have the two labels attached after they are catalogued, limiting the amount of labor required for new materials. If a library uses a book jobber and purchases their materials already processed, this option provides an excellent method for jobbers to provide processed materials without adding RFID tag programming fees to the material processing method.

Blank Programmable Labels

Libramation will provide blank programmable labels at the library’s request. We usually recommend the library not choose this option, as blank tags are more liable to be damaged and identified as a label of interest.

Printing Labels - Barcode Printer/Encoder Option

If the library wishes to print their library logo and the barcode directly onto their RFID labels themselves, they have the option of purchasing a Zebra R2844-Z RFID Smart Label Desktop Printer and Encoder unit. Library staff can either scan a barcode for the item and a duplicate barcode is printed on the RFID label, which simultaneously programs the RFID tag, or they can print a range of labels using the software which comes with the printer.
Libramation’s RFID staff stations are both circulation desks and return stations. Libramation’s Lib~Digit staff workstation software and our circulation desk layout recommendations have been designed to reduce the amount of handwork required by library staff, increase the speed of circulation by integrating seamlessly with the library’s automation system. The upgrade for the circulation desk RFID software is simple; we just attach the Commander reader/writer unit and antenna to your existing circulation computer and install the software. With the addition of a touch-screen monitor, staff can utilize the Lib~Digit Circ-Desk software without the use of a mouse or keyboard. Staff will only need to revert to their circulation software and keyboard and mouse when a change needs to be made to a patron record, a circulation block is identified, or a fine needs to be paid. Library staff can complete an amazing amount just on the ordinary circulation desk.

Some of the features of our Lib~Digit Circ-Desk Software are:

- Check-out Items
- Check-In Items
- Identify Items with Special Circulation Statuses such as Holds or Lost
- Renew Items
- View List of Materials Checked out by Patrons
- View Money Owing
- Print Branch Transfer Slips
- Print Hold Slips
- Set the security bit on or off without circulating the material
- Program/Reprogram Tags
- Program/Reprogram Tags for Multiple Piece Sets
- Print List of Items Checked Out by Patron

**Staff Workstation Components**

**Add On Module**

The staff workstations are designed to be add-on components and can be connected to equipment that is already in the library. This is a more cost effective solution for the library as they are not required to purchase additional equipment. The Add-on Module consists of the Lib~Digit software and the addition of the RFID Reader/Antenna. The library can continue to use its existing computer, receipt printer and scanner. The library can also simply add the Add-On Module to their return workstations, ensuring the return process is as easy as the check-out process.
CircDesk Communicator

The CircDesk Communicator Module includes an RFID antenna/reader and the software to connect the RFID antenna readings directly to circulation window. Special driver software assists the RFID Reader/Antenna to send individual material numbers to the ILS with carriage returns between the numbers with enough time allowance to ensure there is no data collision. As materials are signed out/or returned, the items display on the screen as usual, with the security status on the RFID tag being changed simultaneously.

Circulation Desk – Self Check Combination Station

A Combination Circulation Desk – Self Check Station allows libraries to optimize staffing and facility space. The workstation comes equipped with a receipt printer, both the Lib~Digit staff workstation and self-check software, RFID antenna, patron card scanner and a monitor that is able to swivel so that it may face staff (if using as a circulation desk) or face the public side of the counter (for the use of a self-check). The combo desks provide the flexibility to provide a full service check out station during high circulation periods, while converting it to a self-check during the quieter times.

Commander Reader/Writer and Antenna

The Lib~Chip label is activated by and communicates via our Commander reader/writer antenna unit that is built into both our Lib~Chip stations (Self-Check and Circ) and our security gates. The Commander unit is able to read and write (update) all labels in a stack of material (between 12 and 16 items) to an approximate height of 14 inches or 36cm. The Commander also switches the EAS bit to the appropriate setting.

Lib~Digit Staff Workstation Operations

Libramation’s Lib~Digit Staff Workstation software is able to complete the same processes as the Circulation Module in most library automated system. This includes signing out materials, renewing materials and returning materials. The software is also able to print hold and transfer slips as materials are checked in. Library staff are only required to return to the library automation software when changes need to be made on a patron record, such as a change of address or a payment of a fine. The Lib~Digit Staff Workstation Software can also be used to program RFID tags. This is extremely useful in the event that a material was missed during the conversion process.
RFID Patron Self-Check Stations

Libramation’s Lib~Digit Easy-Check stations promote customer self-sufficiency while providing a confidential, fast way for patrons to borrow items. The installation of an Easy-Check station, allows libraries to increase their public service, by reallocating staff from repetitive circulation tasks to more creative tasks, rather than having to add to their budget.

Our Easy-Check stations allow patrons to:

- Choose the language they wish to use
- Check out and renew materials
- View Circulation Information such as:
  - Hold Items Available
  - Outstanding Fines
  - Number of Overdue Materials
- Return materials
- Receive a Receipt after Checkout, Renewal and Returns

Hybrid Capability

Libramation is pleased to offer hybrid RFID self-check stations. The system is very easy to use. The patron places one item at a time on the RFID antenna pad. If the item has an RFID tag the title of the item will appear on the screen, the item can be removed and the next one can be processed. If the item does not have an RFID tag, the item will not immediately display on the screen and an animation will display illustrated how the patron should scan the item. There is a visible scan light which makes it easier for the patron to scan materials. Once the item has been scanned, the item displays on the screen, the item can be removed and the next one can be processed. It is important to point out that when patrons use a hybrid self-check station they can only check out one item at a time. The reason for this is that the system will not identify items that do not have RFID tags, so each item must cross the self-check workspace one at a time so that the patron can easily identify those items that need to be scanned.

SCOT Lib~Manager Software

The Lib~Manager Software allows library staff members to monitor and control the Easy-Check stations. Installed on library staff workstations, the software connects through the network to all the Easy-Check workstations in the library. The software provides the following abilities:

- Library staff can monitor the Easy-Check Stations by viewing the status of each workstation on a scrollable screen. As the circulation process is started, library staff can see the name of the patron using the system, any circulation blocks on their patron
record, the title of the items being signed out, any items that were attempted to be signed out and the time the session started.

- The software can run minimized at the bottom of the screen, with pop-ups that display when an Easy Check station or a patron requires attention. Pop-ups occur when:
  - A blocked patron attempts circulation
  - The system goes off-line
  - A patron attempts to borrow material that is not allowed to circulate
  - The receipt paper is low and needs replacing
  - The help button on an Easy-Check is pressed.

Library staff members have the ability to configure the system to determine which items trigger a pop-up. For instance they may wish to have a pop-up when there is a network issue, but not when a blocked patron tries to use the system.

- The manager software retrieves the statistics from the Easy-Check workstations and allows the reports to print as individual workstations or as a combined effort. The report manager will provide the following reports:
  - Workstation usage by date
  - Length of individual sessions
  - Reason for unsuccessful checkout sessions
  - Items attempted to be signed out with Circulation Blocks
  - Off-line conflict reports

**Fine and Fee Payment**

Libramation is currently developing our own Lib~Pay system to allow patrons to pay their fines at a self-check station. Libramation has also partnered with both Comprise (SAMS) and EnvisionWare (eCommerce) to allow for full integration of their fine payment software into our self-check installations. All three of these systems allow patrons to pay any fees or fines owing without having the embarrassment of having to talk to staff.

The system is very easy to use. When a patron scans their patron card using our Lib~Digit Software, the system connects to the ILS database and checks to see if there is any money owing on the patron record and if there are any circulation blocks. If there is a circulation block due to the patron having reached their fine threshold, a screen pops up letting the patron know they are blocked due to fines. If the patron owes money but has not reached their threshold, the circulation process continues. Either way, if the patron owes money, they have the option of pressing the “Pay Fines” button that is available in the software. Pressing this button activates the fee payment software, which further allows the patron to pay any outstanding fines. The system allows payment by credit, debit, or by cash vending machine. Once the fines are paid, the patron can then return to the Easy-Check system and borrow their materials.

**Multiple Language Capabilities**

Libramation’s Lib~Digit software is capable of supporting the languages currently recognized by the SIP2 protocol. This includes English, Spanish and French among many others. This allows these units to be of service to the many ethnic groups in your population area. Patrons are able to choose their language of preference before the checkout procedure beings and all subsequent screen text and audible commands are in the language selected. The detailed receipt is also printed in the appropriate language. The Easy-Check system automatically defaults to English after a time-out period has expired.
Customization

Our Lib~Digit Easy-Check software has sophisticated customization features. Libramation works hard to ensure library staff can customize as much of the software as possible. The animations included in the instructions can be customized to meet the library’s requirements. The library also has the option of adding their own patron card image to the animations adding patron recognition value to the instructions. Library staff have the option of customizing the text and graphics on each of the windows of our Lib~Digit software. They can also create their own .wav files to customize the audible instructions.

Library staff can customize the information detailed on the receipt to meet privacy requirements and requests. For example, the library may only want the patron’s number to display on the receipt, not the patron’s name. A staff member can easily edit this setting. They can also customize the header and footer of the receipt, which can be used to inform patrons about an upcoming event or new library offerings.

Easy-Check Station Operations

Patrons can use the Easy-Check station to view their circulation status and renew items that are already borrowed as well as sign-out and return materials. The library can configure the machine as to whether materials can be borrowed, returned and/or renewed by activating and deactivating the buttons.

Easy-Check Equipment

Libramation currently offers five Lib~Chip Easy-Check models:

Lib~Chip Eco-Check, Tabletop (Model LC/EC-TT)

The Lib~Chip Tabletop model is designed to be placed directly on top of a counter or table top or even in a bookmobile and can easily be relocated as required by the library. The unit comes equipped with an RFID Commander antenna contained in a Corian plateau, with the computer enclosed in a lockable powder-coated housing. The system also includes an integrated 15” LCD touch screen, TM-T88III printer and a patron card reader.

Lib~Chip Easy-Check, Assembly (Model LC/EC-A)

The Assembly system includes all the hardware and software components for an Easy-Check system. This installation can be built into either existing or new millwork, allowing for maximum customization and integration into the library décor. Copies of the necessary detailed line drawings and mechanical specifications will be provided to the library architects and contractors to ensure all components will be properly housed.
Lib~Chip SCOT (Model SCOT06)
The Lib~Chip SCOT06 is a free-standing kiosk made from wood with a solid surface counter top and finished with a tough laminate. The library can select their choice of countertop and base cabinet laminates from manufacturers such as Wilsonart, Formica, Nevamar and Arborite. The cabinet is ergonomically designed and wheelchair friendly to fit into any library environment. The legs can be removed from the unit to allow it to be used as a tabletop model, adding to the system's lifespan. The library also has the option of purchasing a hydraulic leg upgrade. This allows patrons to raise and lower the cabinet as needed to meet any special needs.

Lib~Chip Easy-Check, Tower (Model LC/EC-T)
The Lib~Chip Tower is a stand-alone kiosk with a contemporary design. Brushed stainless steel posts support a 15" LCD touch screen. The remaining hardware is contained in a slim lockable powder coated cabinet and a Corian top that is custom made to the library's specification. The small footprint of less than 5ft square makes an ideal system to process high volumes of material while minimizing the use of valuable floor space.
**M-3 Cabinet (Model M3/EC)**

The M-3 Cabinet is made from wood and custom finished with tough laminates, these kiosks can be custom-built to fit any library décor. The system hardware is contained in a locking base cabinet and we offer two styles of screen arm assemblies for the 15” LCD touch screen and patron card reader. The laminate or Corian® (optional extra) countertop protects the Commander reader/writer antenna and thermal receipt printer. This system comes with a Corian® plateau to indicate the RFID target area.

![Lib~Chip Mark-3 Cabinet](image.png)

**Finishing Options**

The Library can customize their workstations to match their existing décor. Wood finishes are available in the standard wood types and colors. The library can choose from different vendors for both their laminate and Corian finishing. These vendors include: Arborite, DuPont Corian, Formica, Nevamar, Pionite and Wilsonart

**Easy-Check Components**

**Touch Screen Interface**

The Lib~Chip Easy-Check is equipped with a 15” ELO Entuitive 3000 Series LCD Touchmonitor (17” monitor optional). This allows patrons to easily select their preferred language (if enabled), input a PIN code if required and perform the necessary interface steps to facilitate the charging process without the use of mouse or keyboard. The monitor is extremely bright, with excellent color reproduction and has an anti-glare surface treatment.

**Thermal Receipt Printer**

The Easy-Check comes equipped with an Epson TM-T88III thermal receipt printer, capable of printing 12 lines per second and includes an integrated cutter. This printer was selected as a component as it can be monitored in a Windows environment and we are able to select fonts that are appropriate for the languages a patron may choose to use.

The printer is easily accessible from the top of the counter, allowing paper to be changed easily or for unit blockages to be cleared. The TM-T88III uses a standard 3.1/8” by 180’ single-ply thermal paper that is readily available.
Lib~Chip RFID Security

The implementation of a full RFID system lends itself to providing better security for your library. The use of RFID tags for security is more cost effective and time efficient as a single label is used for all aspects of library processes including circulation and security. Libraries no longer face the expense or have to go through the process of placing EM strips or RF tags into materials.

Security Options using the EAS bit or the AFI Field

Libramation’s Lib~Chip anti-theft function offers the library the choice of using either the EAS (Electronic Article Surveillance Bit or the AFI (Application Field Identifier) Field to prevent unauthorized borrowing, reducing inventory shrinkage. Our Lib~Chip Easy-Check, Circ-Desk, Book Drop Assembly, and ACT-Return units can effortlessly set the EAS Bit to the correct setting or program the AFI to read C2 which is the correct setting for allowing items to leave the library. As materials are signed out, the Lib~Digit software changes the status of the item on the RFID tag to authorized, allowing patrons to pass through security gates equipped with a Reader and Antenna. The gates search exclusively for the security status set on the RFID tag. Our security gates with auditory alarms and flashing lights activate should someone attempt to pass through the gates with unauthorized items.

Other RFID security systems often require the gate electronics to scan and match up to 14 digits of an item barcode with the ILS or a separate database to verify the material is authorized to leave the library. This process is very time consuming due to the large data transmission requirement (14 digits = 112 bits of data) and the requirement for it to search a computer database. In addition, if the database or data transmission is interrupted, no security is available with this process.

EAS Security Bit Option

During the circulation process the Lib~Digit software turns the EAS bit to either ‘authorized’ or ‘unauthorized. This bit is included on all our RFID tags. If the library chooses to use the EAS bit for security as an item passes through the security gates, they are required to only look for the status of a single bit of information on each item. This makes the evaluation of items extremely fast and increases the accuracy of the security system. It also means that there is no computer or server required for the Security Gates.

AFI Field Option

The library also has the option of using the AFI (Application Field Identifier) field for security purposes. This field is also included on all our RFID tags. When materials are signed out the field is programmed with the ISO standard code C2. The C2 identifier, which will soon be an ISO standard, indicates that the materials have been signed out and the patron is authorized to remove the item. The use of the single field for gate inquiry does not require the security gates to have a separate computer or server connected to them.

Security Gate Configurations

Our Lib~Gates are available in two standard configurations, either as a single aisle (two antennas, one passage) or as dual aisles (three antennas, in/out). The aisle opening can be adjusted from 36 to 42 inches and easily accommodates wheelchair access thus meeting current ADA requirements. The optimum opening is 38 inches allowing for the best “read” for any tag orientation.

Libramation also has the ability to place gate aisles next to each other so that a wide space can be secured. The gates have the ability to be configured so that sets of gates can run side by side without the need of shielding between the gates. This configuration provides for the gates
to be switched on and off at up to 6 times per second with the gates alternating. This avoids any interference gates may experience by being in proximity to each other, and the power switches so quickly between the gates that no items are missed. Libramation’s gate configuration can handle single, double, triple and quadruple aisles in the installation.

ADA Compliance

The gates are available in multiple configurations. We recommend an aisle opening between gates of about 40 inches, which easily accommodates wheelchair access thus meeting current ADA requirements.

Security Gate Components

The Security Gates System is comprised of two components – the security gates (antennas) and a control box. The control box contains the major electronic components that identify the security status of items as they go through the gate and determine whether the alarm should be sounded. The control box should be within 30 ft of the actual security gates (antennas) and is connected to the security gates through cabling that is ideally routed underneath the floor of the library. The use of the control box allows us to minimize the amount of electronics installed in the gates by only requiring the RFID tuner to be attached. The use of the control box protects the majority of the security electronics from damage should the gates be damaged or experience vandalism.

Modern Design

Libramation is currently able to offer three Lib~Gate Security Antenna styles to ensure the right “look” for any library décor. Styles include:

- **Kameleon** — a contemporary slim-line design constructed from ABS plastic and a brushed metal antenna.

  ![Lib~Gate® Kameleon Model LG/2A-A Security Antenna](image)

- **Plexi** — made from plexi-glass with the antenna made from copper wire.

  ![Lib~Gate® Plexus Model LG/3A-P Security Antenna](image)
- Feig -- made from ABS plastic with different color base plates.

**Alarm Notification**

All Libramation Lib~Gates are equipped with both audio and visual alarms that are activated when an un-authorized item passes through the opening.

**Security Gate Options**

**Notification of stolen items**

Typically, the Lib~Gate Security antenna operate as a stand-alone system, since they are scanning materials for either the status of the EAS bit or for the contents of the AFI field. This system is the most efficient, as the gates can identify items by looking for a very small piece of information. This use of this system also means that the security gates do not require a network connection or a computer.

Libramation offers a Display Notification custom feature, providing a detailed listing of the unauthorized materials that have passed through the gates. It requires an additional computer connected to the gates electronics and a network connection. Once an unauthorized item is detected the alarm will sound and, at the same time, the electronics will query the unauthorized item, and the PC will send this information to one or several monitors. This is available at an additional cost.

When an alarm is triggered, it is usually because a patron has forgotten to sign out a material. Patrons who are intent on stealing materials are more likely to determine a way around the system. Patrons who set off the alarm, in most instances, will stop to discuss it with library staff, or library staff will stop the patron. Rather than invest a great deal of money to identify the few objects that are stolen from the library after the gate alarm goes off, it may be more prudent to purchase a hand-held device. If a patron sets of the alarm, rather than have to search the patron and their bags, library staff can simply scan the patron with the hand-held to identify what item has not been signed out.

**Patron Counter**

Libramation can provide a patron counter that can be installed at the entrance of the library. We do not recommend attaching the counter to the security gates as it may cause interference with the reading of the RFID tags. The counter consists of three parts: wireless patron counters which are attached to the gates, the CompuCount, an internal receiver to receive data from the wireless counters, and a computer which configures the CompuCount and views the data. There is no software installed on the computer.
Read Range
The typical indoor range of the indoor unit is up to 200 feet.

Staff Operations
The user interface is based in html coding and is very simple to set up. The CompuCount, which stores the data, is given a standard IP number. Staff members connect to the software through a web browser using the IP address as the html address. This gives the staff member access to setup passwords and user options.

Reported Data
Patron counts are collected for statistical purposes on the CompuCount. They are stored by the half hour, hour, day, week, and month. Half hour counts are stored for up to 3 months, and hourly, daily, weekly and monthly counts are stored for 1.5 years. The data can be exported into a spread sheet or any other program that accepts comma delimited files.
Lib-Assist RFID Hand-Held

Lib-Chip™ Solution

Independence, portability, material handling and superior inventory control with RFID systems from Libramation

When was the last time an inventory was completed at your library?

Some library directors have stated that many years pass between inventories because closing the library to conduct an inventory, results in numerous complaints from patrons.

How does your library locate items that are presumed missing or mis-shelved.

Inventory control is one of the largest challenges faced by most libraries and potentially, one of the most important applications of the Libramation RFID system.

Libramation’s Lib~Assist Hand Held tablet updates information to the circulation database by either wireless communication or via the built-in PC option using SIP2 protocols.

The hand held unit is designed to read at least 15/20 tags per minute, meaning the system can read 900 to 1200 tags in an hour, and will reads labels at a distance of 8 inches (20cm).

By setting program parameters via the touch screen on the unit, the Hand Held uses the Lib~Assist software to complete the following functions:

**Circulation** – The hand held can sign books out to patrons or be used for returning materials. This can be especially helpful for small libraries or bookmobiles.

**Inventory** – Items are loaded into the hand held unit as they are scanned on the shelves. The information can communicate directly with your ILS for inventory, or it can be uploaded into the inventory module depending on the ILS.

**Programming RFID Tags** – Using the built in scanner, RFID tags can be programmed using the hand held as the programming unit.
Searching for specific items – Lists of items that are missing, on hold, or identified for other purposes can be loaded onto the handheld. As the shelves are scanned, the items are identified.

Shelf reading – As library staff pass the reader along the shelves, items that are in the incorrect location are identified. The machine beeps to let the user know of the issue.

EAS – The Lib-Assist can also detect if the EAS Bit has been set or not. In this case an item may not have been returned properly.

The Lib-Assist has a dual platform reading both Barcode and RFID labels. This feature allows for easy programming of RFID tags without having to move cumbersome equipment. In addition, it also features USB, Bluetooth and WiFi connection options.

Libramation’s Lib-Assist Hand-Held Tablet is fully compatible with the Library’s existing ILS allowing to upload data to the library’s ILS and download data to the handheld using either SIP communication, or if the ILS is able to accept information in a text file format (i.e. Inventory Purposes). The amount of information that can be downloaded from the Library’s ILS may vary depending on the software used in the library.

Specifications

- Processor/Cache: Intel® Centrino® processor technology with the Intel® Core™2 Solo Processor U2200 (1MB of L2 cache, 1.20GHz, 533MHz FSB)
- Operating System: Windows XP
- Chipset: Intel 945GM
- Display: 10.4” XGA TFT LCD (1024 x 768)
- System Memory: DDR2 533MHz SDRAM memory Base configuration of 1GB
- System Storage: 1.8” Hard Disk Drive (HDD) with 80GB capacity
- PCI bus master enhanced IDE
- Supports Ultra ATA 66/100
- Communications: Intel® PRO/Wireless a/b/g card
- Integrated Bluetooth®
- Dimensions: 10.0” x 10.0” x .95” (256mm x 256mm x 24.3mm)
- Weight: 3.3 lbs.¹

Battery

Battery life approximately 3-4 hours²

Lithium-ion standard battery with 40WHr capacity

¹ Weight represents approximate system weight measured with a 40WHr battery.
² Battery life is dependent on actual wireless radio usage and power settings.
RFID Conversion

One of the most time consuming elements of implementing an RFID system is the application of the RFID tags to library items. The method used by the library may change depending on the timeline of the expected conversion, the number of staff available and the amount of materials that require RFID tags.

The Conversion Process

From Libramation’s experience, we believe that the most efficient way for libraries to meet its goals for the conversion of materials to RFID is to program the collection by systematically working through the shelves as well as converting items during the circulation process. This will ensure that any materials that were not on the shelf at the time of conversion will be converted as they are being checked into the library. Any materials that are converted during the check-in process and shelved prior to the section being completed will be easily identified, as the antenna will already be in place and the item will already be read on the RFID antenna.

Whitby Public Library in Ontario just recently completed their conversion process. They discovered that the staff working on the conversion averaged about 250 books per hour when the items were close to the workstation. Alameda Free Library ranges between 280-300 books an hour with their workstations among the shelves. This reinforces the statistics we have gathered from other installations. We have also identified that after staff members complete about 1000 items, their average number of items programmed per hour reaches its peak. Once a routine has been developed for non-book material, you can expect to average about 85 items per hour. The reason non-book material, especially CDs and DVDs, take longer is that the placement of the label requires more attention and in some cases requires the application of more than one RFID tag.

The “Tagging” Process

After the hardware and software are installed and staff is trained, the next step is to process materials so they are RFID ready. This process includes attaching the tag in a standard location to the material and programming it so that it matches the data in your library automation system. Attaching the RFID label to print material is less involved then attaching it to other Media. CD’s and DVD’s take considerable care, as it is important to place them exactly in the correct location so that the label is balanced on the media.

The Conversion Process for each item includes the following steps:

- The RFID tag is placed on the item.
- The item is placed within the range of the RFID antenna
- The barcode on the item is scanned
- The RFID tag is programmed with the item information (barcode number, unique ID number, library identification code).

Conversion Equipment Options

To facilitate the conversion of a library’s existing collection to RFID, as well as tag new material, Libramation offers two Conversion Station models.

Lib~Chip Tag Conversion Add-On Package

The Add-on Conversion Package is comprised of Lib~Digit programming software and a Commander reader/writer unit, power supply and a pad antenna. The RFID software may be added to an existing backroom computer and the reader/writer unit is attached to the PC’s communication port. The existing monitor, mouse, keyboard and a barcode scanner are
utilized. Libramation will provide the necessary computer hardware on request; however, we feel this is a cost effective solution for the library by allowing the library to continue to use existing hardware. These workstations can easily be put on a rolling table and moved into the shelves without the library having to have the extra cost of purchasing a Tag Conversion Station.

**Lib~Chip RFID Portable Tag Conversion Station**

Libramation’s Mobile Conversion/Programming Unit is designed to be mobile and can be used in the stacks. This conversion station includes the rolling table, the hardware and the software necessary for programming RFID tags. This station comes fully equipped with an Elo TouchScreen Computer that is a single component, a scanner, automatic label dispenser, and a Commander reader/writer unit.

**Zebra Smart Label Desktop Printer/Encoder Unit**

For libraries that prefer to print their own RFID labels with either a barcode or the library logo, rather than purchase pre-printed labels, the library has the option of adding a RFID printer/programming unit to either conversion station. The Zebra R2844-Z Smart Label Desktop Printer/Encoder unit, prints a barcode and/or logo and simultaneously programs the RFID chip with the barcode number, as the barcode label is scanned or entered manually.

**Other Options**

Libramation’s RFID Circulation Desk Software and Lib~Assist Hand-held Device can also be used for programming RFID tags. The library may wish to purchase only enough Conversion Stations to be used in the Technical Services Department after the conversion is done, and use the Circulation Desk Software that will be used for checking out and returning materials for the circulation process as well. This is often a more cost effective method of converting materials without having to purchase workstations that are only used for the conversion process.

**Conversion Station Rentals**

Libramation is prepared to lend one tag conversion add-on stations to the Library for a period of 30 days for every 75,000 RFID tags that are ordered to a maximum of 10 stations. After that time, the cost to rent the station is $300.00 per month.

Library’s can also rent the portable tag conversion stations at a rate of $900 per month.

**Label Application**

Libramation Lib~Chip RFID Tag comes as an all-in-one microchip, antenna and cover label. This reduces the amount of conversion time, by making the installation of the RFID tag a one step process, rather than a two step process. Our tags do not require a further cover or label protector. The adhesive used for our labels is of good quality, and does not require further reinforcement.
RFID Training and Documentation

The installation of Libramation’s RFID system and the training of library staff will be provided by at least one of Libramation’s Installation Team. Installation and Training Team members are members of the Technical Support Staff and are fully trained and experienced in our RFID hardware and software. After the installation is complete, Libramation staff will provide the training to library staff. Libramation suggests a “train the trainer” approach to ensure that there is a cost effective plan for when new staff are hired. The library has the option of choosing to have centralized training at a single site, or in the case of a multi-branch installation to have trainings at individual branches or locations.

Training Sessions

Conversion Station Training

This session is presented to staff once standard library procedures have been decided on specific to your location. These procedures include the method of conversion, the placement of RFID tags and the mode of programming.

Security Gate Training

If the library is using the EAS bit for security there is no need for training on the use of the security gates as library staff will not need to adjust the gates in anyway once installation is complete. However, if the library chooses to purchase either the Display Notification option or the Patron Counter Option, then training on the use of this option will need to occur.

Staff Station Training

This session is presented to circulation staff once the library is ready to start circulation using RFID. These procedures include basic instructions on how to use the circulation desk.

Self-Check Training

This session is for any general library staff responsible for the use and maintenance of the Self-Check stations.

Hand-Held Training

This session is for any general library staff responsible for the use and maintenance of the Lib~Assist Hand Held Units.

Training for Library Technical Support Staff

This training is for all staff responsible for the technical equipment in the library. This includes the SIP Server as well as other network and technical needs.

Documentation

Libramation provides complete and comprehensive documentation for our RFID Solution. It includes both hard copy and electronic versions of the detailed operational manual, describing all the functions and options of the Mark-3. The library has the right to duplicate any material they deem necessary for internal use. All subsequent upgrades and releases are accompanied by their own documentation.
Warranty & Support

Lib~Chip RFID System Warranty

Hardware
All Libramation Lib~Chip Easy-Check Circ-Desks, Tag Conversion Stations, Lib~Gates, Lib~Scan, ACT-R and ACT-S hardware are covered by a full one year, parts and labor warranty.

Software
Our LibMaster software comes with a two-year warranty. Software upgrades, which fix known issues, are sent to customers upon release at no additional cost. Program upgrades that increase functionality are made available to customers. Additional charges for these upgrades are at Libramation’s discretion.

Labels
Libramation will replace any unreadable tags at no cost to the Library, under normal library conditions. We will not replace any labels that are damaged as a result of tampering or vandalism.

Extended Maintenance & Custodial Service Option
Libramation offers an optional three-tier extended maintenance and custodial program that includes a hardware component. The program is available for up to four additional years, can be renewed on an annual basis, includes all software upgrades as long as the maintenance program is in place, includes all labor costs and offers different levels of deductibility, as outlined below/

Gold
Calculated at 12% of price of system, the Library pays no deductible on hardware replacement and there are four scheduled “custodial” visits per year.

Silver
Calculated at 10% of price of system, the Library pays a 15% deductible on hardware replacement and there are two scheduled “custodial” visits per year.

Bronze
Calculated at 8% of price of system, the Library pays 25% deductible on hardware replacement and there is one scheduled “custodial” visit per year.

Please see the Optional Extended Maintenance and Service Plans Booklet at the end of this section for more information.

Third Party Hardware and Software
Libramation’s RFID Solution requires a SIP connection to the ILS. Should the library choose to implement a SIP Concentrator approach to the software, only a single connection is required. If not, the library is required to provide a SIP connection to the ILS for each Lib~Chip Circulation Desk Software, and Self-Check installation.

Technical Support
The Head-Office of Libramation is located in Edmonton, Alberta. With today’s technology, the distance of our offices does not affect project responses. In fact, it enhances our ability to be quick to respond to your needs.
When we install our RFID software, we request remote access to your server, in the event that is not possible; we use on-line meeting software to connect with library staff. This allows library staff to demonstrate the problem and concerns they may be experiencing directly to technical support staff. This access permits us to view the results of any of our remote diagnostics. Once technical support staff can view the problem, they can take control of the machine, make any changes or update any files required and fix the problem or they can ask library staff to make configuration changes, adjust hardware or try different troubleshooting activities until the problem is solved.

In the event that Technical Support is unable to solve the problem remotely, our TAP Services representatives, who are located throughout North America, are available to provide on-site support. In emergency cases, Libramation can have a TAP Technician on-site in less than two hours. These Technicians are fully trained in all our systems and in most cases, were involved in the installation and implementation of the initial systems. These Technicians are highly qualified, experienced and meet the high standards required by TAP.

Should there be an extremely serious problem, and Technical Services with the assistance of TAP services in unable to solve it, Libramation will send out an Engineer from Edmonton who will be able to be there within 24/36 hours.

Libramation has many customers located on the both the East and West Coast. Some staff members at Libramation are in the office at 7:00am MST, which is 9:00am EST. This allows us to be available to customers located on the East Coast in a timely manner. We also have staff available until 6:00pm MST, which is 8:00pm EST. Any Technical Support calls received after office hours are redirected to a cell phone which is monitored by Technical Support Staff.

Should the library experience hardware failure and require replacement equipment, Libramation will courier the necessary parts using overnight service. This means that if Libramation is notified that a replacement part is needed prior to 6:00pm EST, we can have the part at the library before 10:30am EST the next morning.

We pride ourselves in providing a commitment to build a long-term relationship that excels in after sales service.

**Lib~Chip System Support**

**Levels of Customer Service**

Libramation provides the following service levels for maintenance and software support:

- Toll-free phone – 1-888-809-0099
- E-mail – support@libramation.com
- Fax – 780-443-5998
- Remote access
- On-site

**Support Hours**

- Monday – Friday 9:00 AM – 7:30 PM EST
- Libramation will provide after hours Support at an additional $2000.00 per year.

**Toll-Free, E-mail and Fax Support**

Library staff can contact Technical Support staff by phone, e-mail or fax. Libramation provides utility software for the hardware components in our Lib~Chip RFID system. This allows for offline testing of the various modules. With the assistance of Library Staff, Technical Support will provide further analysis and troubleshooting. Technical Support staff may request remote
access to the workstation for additional troubleshooting purposes. In our experience, we have found that Technical Support and Library Staff resolve 95% of all issues in this manner.

**Response Time**

We respond to telephone, fax and e-mail requests for assistance within a minimum of a two-hour initial response time.

**Remote Access**

Systems and software challenges may be handled by remote connection using TightVNC or pcAnywhere provided we are given remote firewall access.

**On-site Support**

In the case of a more serious issue and Technical Support Staff are unable to solve an issue remotely with the assistance of library staff, we will issue a service call to TAP Computer Services, our maintenance service provider. TAP technicians are local to your location, and are factory trained in all maintenance and repair requirements of our Lib~Chip RFID system. Onsite calls are scheduled by our Technical Support Department.

**Help Contact Protocol**

Initial contact is made to our Technical Support Department. These staff members will draw on their experience to solve the problem using the diagnostics available in the software, accessing workstations remotely and with the assistance of library staff. Technical Support staff will consult with Libramation’s program development team and our system hardware engineers should escalation be required.

If an on-site visit is required because Technical Support has either be unable to determine the problem, or because it is a hardware issue that requires onsite attention, Libramation will issue a work order for a Technical Support Analyst. This Analyst may be Libramation’s technician based in Colorado Springs or a TAP Computer Services Technician based in Cheyenne.

In the event that the technician is unable to solve the issue, staff will be flown to the library from the main office.

If at any time there are concerns regarding Technical Support issues, our President can be contacted at the main office.

**Preventative Maintenance**

Libramation will send out an on-site technician for a Custodial Service Calls 30 days after installation and at the end of the first year. This call includes a check of all hardware and making any adjustments as required as well as completing a system review with a designated library representative.
Automated Materials Handling

Libramation is pleased to provide and support our ACT-Return and ACT-Sorting Unit. The library has many options when choosing the type of installation. The system is available with a minimum of 3 sorting, but can handle over 200 bins as allowed by the SIP2 protocol. Materials can be moved around corners, up and down floors and sorted by circulation status as well as location, item type and call number.

ACT-Return

Libramation’s ACT-Return units are capable of processing RFID tagged and/or bar coded items. As a material is placed on the return belt, the Lib~Digit Return software checks to see if there is an RFID tag. If no RFID tag is detected, the system then scans the barcode on the item. The item being returned does not have to be in a specific position in order to be checked in if the item is RFID, however if the item does not have an RFID tag, the item must be placed with scanning the barcode in mind. The item must be inserted into the return unit with the barcode facing up and reasonably parallel to the visible scan line. We use an extremely intelligent barcode scanner unit that will read barcodes at up to a 30 degree angle.

Interior ACT-Return Unit

The interior return is designed to be installed into any interior wall. The return unit can feed materials into the ACT-Sorting Unit, or can drop the materials into a book bin on the other side of the wall. The library also has the option of having the Interior Return Unit be connected to ACT-S Unit and having both the return and sorting system be free standing inside the library.

Exterior ACT-Return Units

The Exterior ACT-Return system comes equipped with an external window, protecting the return unit from the elements and vandalism. The system requires a patron card be placed in the card slot to open the window for receiving items. By design the return system does not record the patron number and the materials being returned do not have to be signed out by the patron returning the materials. The system has the option of recording the patron card number as the window is opened and/or a security camera can be installed within the unit. Once the window is open the return process and look of the unit is exactly like that of the interior. Libramation’s outside return units have a motorized window that opens vertically. The Exterior Window has a fan which circulates warm air between the window and the touchscreen component. This reduces possible condensation on the window and maintains a tolerance factor for the touchscreen working temperature.
Fire Suppression

The library has the option of adding a fire suppression chamber to the Exterior Return Unit. The Fire Suppression Option is fully UL approved and should meet most federal state/provincial and local fire regulations. There is a small door on both the return end and the exit end of the return belt. When an item is placed on the belt, both doors close, and the item is contained in a “fire suppression area”. A special sensor then checks for any indications that the item is on fire. If there is no indication of an issue, the gate that connects to the remainder of the sorter opens as well as the door just inside the return slot. Once this door is open the patron can place their next item in the return station. The time it takes for this procedure is extremely short, and there is no addition in the time required between materials.

Please note this may require specifications from, and/or approval of, local authorities to ensure compliance with local, state and federal regulations. Customer is responsible for providing us with these specifications, and for arranging acceptance of such. Any associated costs are not included in any pricing submitted.

Staff Induction Unit

The Staff Induction Unit is a special return station which connects to the sorter for use by library staff. Library staff can place items into the staff induction unit that have been returned at any book drop (RFID reader equipped or not). As each item goes through the staff induction unit, the item is marked as returned in the ILS, the EAS bit is reset and the items go through the sorter and are sorted accordingly. These units can greatly reduce material handling by staff and once again maximizes the sorting capacity of the system installed in the branch.

Multiple Return Stations

An ACT-Sorting Unit can be connected to more than one ACT-Return units, using intersections and additional conveyors. For example, one of our installations has one interior and one exterior return that come together at 90 degrees and feed into the ACT-Sorting system. This allows a library to have multiple return stations but only one sorting system ensuring the system is utilized to its maximum potential.

ACT-Sorting

Libramation’s ACT-Sorting system is extremely flexible as each installation is designed and built for each location. This gives Libramation the flexibility to develop an installation that meets the library’s specific system and physical requirements. Our installations are able to handle multiple ACT-Return units which can then connect to a single sorting unit. Our conveyor design allows for materials to be returned on multiple levels. Materials can be moved to go around corners, merge together from other locations, and move items up or down several stories either using elevators or chutes.
ACT-Return Configurations

Libramation’s Lib~Digit ACT-Return software’s sorting criteria is easily configured by library staff. It is just a matter of opening the system software setup window and making the necessary changes. Our Lib~Digit software is able to sort items based on criteria that is communicated via SIP2 communication. This means our system is able to sort materials based on home location, circulation status, format and/or call number. The criterion used for sorting items into the system is easily customized for library staff and can be changed without the assistance of Libramation staff. The usual format is to look for special exceptions in the item record such as “from another library”, “lost” or “on hold” prior to items being sorted by call number. This allows items that need special handling to be identified, prior to those that go directly on the shelf. Items that are not identified in the system can either be rejected by the system, or accepted and placed in Bin 0, which is usually reserved for items that do not fit any of the other sorting criteria.

Holiday Options

The library should not need to reconfigure their system for long week-ends or other occasions if the library purchases the ergo-bins provided with the unit. When a bin is full, the system bypasses that bin to the default bin. The default bin can be specially set-up to receive a large number of items by using a larger bin, or by having the system unload them onto the floor.

Scalable System

The modular design of the ACT-Sorting system allows a library to start with a minimum of three sorts and expand the system by adding multiple bin sections to enhance capacity. The library can expand their system in multiple bin sections long after the initial installation without requiring a major reconfiguration of the system already in place. The existing components continue to be used with only changes to the system configuration being required in the Sorting Logic control box and a lengthening modification on the main belt to allow it to incorporate the additional module or modules.

Return and Sorting in Common Areas

The library may wish to consider placing a return and sorting unit in the public area of the library. The unit is surrounded with a protection guard to ensure that patrons are not able to come in contact with any moving parts. The bins are fully protected and locked into place, securing the items in the bin. When a bin has reached capacity staff members must use a key switch in order to remove the bin. As a security feature, when a bin is removed from the sorting unit, the system will stop its mechanical movements until the bin is replaced. We have installed a similar unit around a structural column allowing the library to utilize a space that is often considered unusable.

![Side view schematic of a Free-Standing ACT-Return and 5-bin sorting system](image-url)
Material Conveyance Capabilities

The library has the option of using conveyor or “transfer” belts to move material around the library on a horizontal basis; however we can customize the conveyor to rise or lower materials to different levels. The transfer belts are custom built for each installation.

Depending on the elevation measurement, we can transport materials in a variety of methods. Materials can be moved by belt, lift or elevator, and/or chute.
Material Takeaway Equipment

Standard Book Bin
Libramation’s Standard Bin is designed to receive multiple types of library materials without damaging the items. It is outfitted with a spring loaded built-in float tray that depresses as materials are added and raises as materials are unloaded. The cushioned float tray has minimum gaps around the edges preventing materials from falling to the bottom of the cart and is easy on the shoulders and back of staff because materials rise to the working. The bin is also equipped with a Fill Control sensor that detects when the bin is full. The system then notifies library staff, as well as diverts any incoming materials into the default bin to prevent material damage and dumping material on the floor.

Ergo-Bin
This unit is an electrically powered bin with an optic eye system that minimizes the distance the material falls by raising and lowering the bottom of the bin depending on the level of materials. This reduces the damage done to materials by reducing the distance they have to fall. The cushioned float tray has no gaps for materials to fall to the bottom of the cart and reduces the amount of back strain for employees because materials rise to the worker. It is of metal construction and is easily maneuverable with a two or four wheel swivel option. It includes a gel-pack battery that is recharged when connected to the sorter. The unit also sends a message to designated staff workstations when the bin is full and needs to be changed.

Architectural Requirements
Our ACT-Return and ACT-Sorting system does not require any special architectural consideration, except for room in which to install the equipment and a minimum standard door size of 36” in order to maneuver book bins and move equipment into the room for installation. The system does not require special flooring or reinforcement; however we suggest a tile floor as the books bins are easier to move.
About Libramation

Libramation was established in Edmonton, Alberta, in 1998 and specializes in library automation technology equipment and software solutions. Market acceptance of our products and service has been extremely positive in both the public and academic library sectors. Initial installations and repeat orders have allowed Libramation to penetrate the market in Arizona, Arkansas, California, Connecticut, Illinois, Kentucky, Minnesota, New York, New Hampshire, Ohio, Texas, Washington, Wisconsin and across Canada.

Libramation products include patron self-check stations; ergonomic circulation desks; material return and sorting systems; CD/DVD 24 hour self-charge and return “Media Bank” kiosks and RFID technology. New technologies such as RFID (Radio Frequency Identification) offer libraries greater benefits than ever before possible. Libraries have found RFID offers improved public service and enhanced collection security at a lower cost. All this, while enhancing the health and safety of staff by reducing repetitive motion injuries and improving overall materials management.

Our customers have achieved some amazing results. With a goal of improved efficiency, one library installed three of our patron self-check units. Patrons were soon checking out 76% of their own materials in a building with over 100,000 monthly circulations. Patrons enjoyed the added privacy and speed at check out while freeing staff to increase valuable reference and reader advisory services.

Other libraries have wanted to manage costs associated with repetitive motion strain and absenteeism. Our custom designed circulation desks, self-return and modular sorting systems have reduced mundane repetitive tasks for staff, improving the quality of the workplace while enhancing the productivity of the entire materials handling process.