# TABLE OF CONTENTS

1.0 USER GUIDE

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Carriage Bezels</td>
<td>4</td>
</tr>
<tr>
<td>1.2 How Do I Access An Aisle?</td>
<td>5</td>
</tr>
<tr>
<td>1.3 Logging In</td>
<td>5</td>
</tr>
<tr>
<td>1.4 Safety</td>
<td>7</td>
</tr>
<tr>
<td>1.5 How Does My Light Carpet Work?</td>
<td>7</td>
</tr>
<tr>
<td>1.6 Light Carpet is Blocked, Now What?</td>
<td>8</td>
</tr>
<tr>
<td>1.7 Sweep is Blocked, Now What?</td>
<td>9</td>
</tr>
<tr>
<td>1.8 Safety Bypass</td>
<td>10</td>
</tr>
<tr>
<td>1.9 Maintenance</td>
<td>10</td>
</tr>
</tbody>
</table>

2.0 OPERATOR’S MANUAL

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Carriage Enumeration</td>
<td>11</td>
</tr>
<tr>
<td>2.2 Setting Carriage Limits</td>
<td>12</td>
</tr>
<tr>
<td>2.3 Light Carpet Configuration</td>
<td>14</td>
</tr>
</tbody>
</table>

3.0 ADVANCED MASTER CONTROL OPTIONS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Arrow Functionality</td>
<td>16</td>
</tr>
<tr>
<td>3.2 Safety Bypass</td>
<td>16</td>
</tr>
<tr>
<td>3.3 System Security</td>
<td>18</td>
</tr>
<tr>
<td>3.4 Global Locks</td>
<td>18</td>
</tr>
<tr>
<td>3.5 Manual Reset</td>
<td>24</td>
</tr>
<tr>
<td>3.6 Close Direction</td>
<td>25</td>
</tr>
<tr>
<td>3.7 User Set Up</td>
<td>26</td>
</tr>
<tr>
<td>3.8 Timers</td>
<td>29</td>
</tr>
</tbody>
</table>
1. USER GUIDE

Welcome to your Synergy Electrical Aisle Saver!

1.1 Carriage Bezels

The Carriage Control Bezel is used as both an information source, and a means to move carriages to open an aisle. There are indicator LEDs located on the bezel, that display in a different manner depending on the current state of the system.

![Figure 1.1A](image1.png)

*The picture shows a Carriage Control Bezel with no LED lights illuminated. When no lights are present, the system is not movable, or is already in motion.*

In order for the system to move, all carriages must have the "READY GREEN" LED illuminated.

![Figure 1.1B](image2.png)

*When the ready green LED is illuminated on all carriages, the user can press the arrows to open an aisle.*
1.2 How Do I Access An Aisle?

On the Carriage Control Bezel, there are two green arrows, one points to the left one points to the right. The default way to access an aisle is to press the button closest to the aisle you wish to enter. For example, if you would like to access the aisle in the picture below closest to the LCD, you would press the right arrow. If you wish to access the aisle in the middle of the carriages, you can press either the left button on the left side of the aisle, or the right button on the carriage which will be on the right of the aisle.

![Figure 1.2A](image)

To access an aisle, press the arrow closest to the aisle you wish to open. The carriage will move in the opposite direction of the arrow pressed.

*THE WAY AISLES ARE ACCESSED CAN BE CHANGED. HOWEVER, IT IS RECOMMENDED THAT INSTALLERS CHANGE AND RETRAIN SYSTEM USERS TO AVOID POTENTIAL CONFUSION.*

If you need to access the Master Control and you are an administrator, the procedure follows.

1.3 Logging In

An administrator of the Synergy Aisle Saver system can log in and make setting changes. The administrator should be trained by the installer of the system, on how to log in and troubleshoot the system.

*ONLY AUTHORIZED ADMINISTRATORS SHOULD LOG IN, AND THE PASSWORD SHOULD BE KEPT SECRET.*
To log in, press anywhere on the LCD touch panel to bring up the log in screen. The default password for administrators is 111. After entering your password, or 111, press the green arrow button.

Once you have successfully logged in you will be at the Administrator Menu screen. From here you can view settings.

IT IS RECOMMENDED THAT NO SETTINGS BE CHANGED FROM DEFAULT UNLESS AN INSTALLER IS PRESENT. FAILURE TO UNDERSTAND WHAT SETTINGS ARE BEING CHANGED WILL CAUSE YOUR SYSTEM TO FUNCTION IMPROPERLY.

The settings in the Master Controller are detailed later in the manual.
1.4 Safety

The most common safety fault in the Synergy system relates to the Light Carpet System. The Light Carpet system is shown below.

![Diagram of Light Carpet System]

Figure 1.4A

1.5 How Does My Light Carpet Work?

Your light carpet consists of a number of eyes that projects an infrared beam (green arrows in figure above) across the width of your Aisle Saver system. Each system has a different number of eyes, custom made to fit your particular application. You can find the number of eyes your system has by looking next to the "NUMBER OF EYES" button in the Light Carpet menu. As an administrator, you should not change the number of eyes, as this will cause the system to function improperly.

**LIGHT CARPET FUNCTIONS SHOULD BE CHANGED ONLY BY THE INSTALLER.**

The Light Carpet diagnostics screen is a helpful tool used to troubleshoot a system, or to track whether or there is anything present in the system. The blocked eyes feature allows real time tracking of any object in the system. When a person walks into the aisle you can watch every step they take, and see where they stop, or “disappear.” A disappearance occurs when an object is in the system one second, and no longer seen by any eyes the next. This is generally caused by someone climbing on the shelving in a system. Even if there is a book or file resting in the aisle, you will be able to see and find it based on the number of the blocked eyes.
1.6 Light Carpet is Blocked, Now What?

If your Light Carpet Tripped Screen is showing on the LCD Touch Panel, press the “DIAGNOSTICS” button. When your light carpet is tripped, the ready green light on the Carriage Bezel will go out. At this time, no one is able to move carriages in the system. When looking at the diagnostics screen, you can track the person(s) in the aisle, and once no eyes are blocked, and everyone has exited the system properly (either front or back) the system will reset and the ready green light will return.

If someone climbs on a shelf, the diagnostics screen will show no blocked eyes, but at the bottom of the screen it will say BLOCKED. The person has 10 seconds by default to return in the system before the Light Carpet will latch, and the “RESET” button needs to be locked.

When the Light Carpet latches, the bezel on the carriage(s) located on the open aisle will flash all of the LED’s on the bezel(s) will flash. When the “RESET” button is pushed on all of the flashing carriages, the system will reset, and the ready green LED will return and the system is functional. If you hit reset, and the lights continue to flash, there is still an obstruction of the Light Carpet, and it needs to be cleared before the system will reset.
The picture 1.6B tells us that at eye number 4, something appeared, and then immediately disappeared. The light carpet is latched, and there are currently no blocked eyes. To reset the system, simply press the “RESET” button on the carriage(s) of the open aisle that are flashing all LEDs.

This Light Carpet Diagnostics screen tells us that there is something in the system. The object(s) are easily tracked by walking through the open aisle and removing any obstructions. If a person is in the aisle the system will simply say BLOCKED instead of LATCHED, and will reset as soon as the person walks out of the system.

### 1.7 Sweep is Blocked, Now What?

If a sweep has something blocking it, the inside left or right LED will illuminate, depending on which sweep is blocked. The left sweep is located to your left when looking at the carriage bezel, and the right sweep is located on your right when looking at the carriage bezel. A sweep will not cause the system to latch, but will stop any moving carriages if the sweep beam is interrupted. Once the sweep beam is clear the system will go ready green again, but will not move automatically.

This picture shows us that the right sweep is blocked on this carriage. As soon as the obstruction is cleared, the Ready Green LED will return as shown below.
1.8 Safety Bypass

If there is something blocking the Light Carpet or a sweep, that is not visible and you cannot get the system to reset, Safety Bypass can be used to access the aisles when something is preventing movement. To put the system into safety bypass, select Master Control under the Administrator Menu, and press “SAFETY BYPASS” to enable.

When Safety Bypass is enabled, the system will not look at the sweeps or Light Carpet, and the user can move the carriage slowly out of its position. To move the carriage, press and hold the Borroughs logo and the direction arrow you would like the carriage to move. The carriage will only move to its set limit points, and will not crash as long as the limits are properly set.

Once the obstruction to the safety system is cleared, disable safety bypass in the Administrator menu, and press the **RESET** button on all carriages. The ready green light should appear on all carriages if the obstruction was cleared.

1.9 Maintenance

It is critical that your Synergy Aisle Saver system cleaned on a regular basis. Failure to keep a clean environment can disrupt the Light Carpet to a point where the system will no longer function properly. If this occurs, the system will need to be placed into Safety Bypass in order to move carriages and clean open aisles.
2. OPERATOR'S MANUAL

2.1 Carriage Enumeration

⚠️ Warning: Once enumeration has begun, it cannot be canceled. In case of an error, accept the changes and begin again.

Select the “CARRIAGES” button from the Main Menu.

Select the “ENUMERATE” button from the Carriage Menu. If not ready to enumerate, press the red “X” icon to escape. Reference 2.1B.
2.2 Setting Carriage Limits

⚠️ **WARNING:** Once setting limits has begun, it cannot be canceled. In case of an error, accept the changes and begin again.

Select the “SET LIMITS” button from the Carriage Menu. If not ready to set limits, press the “CANCEL” button to escape.

⚠️ **NOTE:** It is important that the carriages are enumerated from left to right and in the proper sequence. Failure to do so will cause carriages to move incorrectly and possibly collide.

The LCD master control will instruct you to “MOVE CARRIAGES TO LEFT POSITION.” Move each moveable carriage to the left limit by pressing and holding the left green arrow on each carriage control bezel. When all of the carriages are in their left limit, press the OK icon on the LCD master control.
NOTE: It is possible to move more than one carriage at a time.

After you press OK, the LCD master control will instruct you to “MOVE CARRIAGES TO RIGHT POSITION.” Move each moveable carriage to the right limit by pressing and holding the right green arrow on each carriage control bezel. When all of the carriages are in their right limit, press the OK icon on the LCD master control.
2.3 Light Carpet Configuration

Press black arrow and return to Main Installer screen. Select the “LIGHT CARPET” button from the Main Menu. Refer to figure 2.3A.

![Figure 2.3A](image)

**SETTING NUMBER OF EYES**

Select the “NUMBER OF EYES” button. On the following screen, type in the number of light carpet eyes and press the green arrow on the number pad to accept the change. (If you need to delete a number, press the red arrow. If you need to exit without making changes, press the red arrow multiple times, until the screen goes back to the Light Carpet Menu).

⚠️ Note: Installer has number of eyes, but this should not change.

**SYSTEM ENTRY CONFIGURATION**

Once the light carpet eyes are set, each eye is assigned a number from 1 to the number entered in the system. The system is then able to determine which end of the system a user is entering from, the “LOW” end or the “HIGH” end. (LOW END→low numbers, HIGH END→high numbers)

⚠️ Note: “LOW END” is generally where Master Control LCD is located.

Set the system accordingly, by pressing the “LOW END ENTRY” button and/or “HIGH END ENTRY” button. The setting next to the button will alternate between “ON” and “OFF”. Default is “LOW END ENTRY” only.

⚠️ Note: If the system is dual entry, both entry settings must be set to “ON”.
**Figure 2.3B**

<table>
<thead>
<tr>
<th>Light Carpet</th>
<th>Recycle/Refresh button</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Eyes</strong></td>
<td>46</td>
</tr>
<tr>
<td><strong>Low End Entry</strong></td>
<td>ON</td>
</tr>
<tr>
<td><strong>High End Entry</strong></td>
<td>OFF</td>
</tr>
</tbody>
</table>

**IF “LONG STEP” OR “LATCH TIME” NEEDS TO BE SET, SELECT THE BLACK ARROW. (IF APPLICABLE)**

**LONG STEP**
If a cart or other material handling device will be used in the system, switch this setting to “ON” by selecting the “LONG STEP” button.

**LATCH TIME**
This setting determines the amount of allowable time (seconds) between when a disappearance occurs and when the system will require a reset. To change the time from the default of 10 seconds, select the “LATCH TIME” button. On the following screen, type in the number of seconds desired and press the green arrow to accept the change. If you need to delete a number, press the red arrow once.

If you need to exit without making changes, press the red arrow multiple times, until the screen goes back to the Light Carpet Menu.

**Figure 2.3C**

<table>
<thead>
<tr>
<th>Light Carpet</th>
<th>Recycle/Refresh button</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Long Step</strong></td>
<td>ON</td>
</tr>
<tr>
<td><strong>Latch Time</strong></td>
<td>10 sec</td>
</tr>
<tr>
<td><strong>Diagnostics</strong></td>
<td>✓</td>
</tr>
</tbody>
</table>

⚠️ **NOTE:**
For any change to take effect, the red and green “RECYCLE/REFRESH” button must be pressed on the LCD master control, or the green check mark at bottom right. You may need to reset carriages after changes take place.

To return to the Administrator menu press the green check mark button.
3. **ADVANCED MASTER CONTROL OPTIONS**

The LCD master control has many options that are available for the system, depending on how the system will be used.

### 3.1 Arrow Functionality

The carriage-arrow direction option allows the user to set the functionality of the carriage movement when an arrow button is pressed. The two options for this setting are **AISLE** or **DIRECTIONAL**. The default setting is aisle.

In the **ARROW** setting, a pressed arrow indicates which aisle will open; i.e. if you push the right arrow on a carriage control bezel, the aisle to the right of the carriage will open. In the **DIRECTIONAL** setting, a pressed arrow indicates the direction the carriage will move; i.e. if you push the right arrow on a carriage control bezel, the carriage will move to the right.

Select the “**CARRIAGES**” button from the Main Menu.

![Figure 3.1A](image)

Select the Next Page. Use the black **“ARROW”** button from the Carriage Menu. Set the system accordingly, by pressing the **“ARROW FUNCTION”** button. The setting next to the button will alternate between **“DIRECTIONAL”** and **“AISLE”**.

### 3.2 Safety Bypass

The safety bypass option shuts off all of the safety devices for the system; to allow you to move carriages away from an object that may be blocking a safety device, such as the light carpet or a sweep. This option can also be helpful during the diagnostic process.
Log in with your Administrator log in code. Select the “MASTER CONTROLLER” button from the Main Menu.

Set the system accordingly, by pressing the “SAFETY BYPASS” button. The setting next to the button will alternate between “ON” and “OFF”. If the system is in the Safety Bypass mode, this would read ON.

Once this mode is turned ON, each carriage can be moved individually by holding the Borroughs Logo button and hitting the desired arrow button. As long as the Borroughs Logo button is held and the limits are properly set the carriage will continue to move until it reaches its limit. Make sure to check each open aisle before performing a carriage move.

⚠️ WARNING: Disabling safety voids all legal responsibility, and should only be used under supervision of an Administrator. This function should not be used as a long term solution to a faulty safety system. After the obstructions are cleared, safety bypass should be turned off and carriages reset.

⚠️ NOTE: Each carriage will need to be reset after turning “SAFETY BYPASS” to “ON”.

3.3 System Security

The system security option allows the administrator the ability to secure the system completely.

Set the system accordingly, by pressing the “SECURITY” button. The setting next to the button will alternate between “ON” and “OFF”. If the system security is enabled, this would read ON. For User Setup, see Section 2.7.

3.4 Global Locks

The GLOBAL LOCKS options allow the user to lock a specific moveable carriage into a fixed position or lock a specific aisle from being accessed.

3.4.1 – Carriage Lock

A Carriage Lock can be used in one of two ways:

1. Locking a movable carriage in a position where an aisle can be created on both sides by using arrows and stop buttons on carriage control menu.

2. Locking an unused carriage in position.

Once the carriages are positioned where you would like them to be locked, select the “MASTER CONTROLLER” button from the Main Menu.
Select the "GLOBAL LOCKS" button from the Master Controller Menu.
Select the “CARRIAGE” lock button from the Global Locks Menu.

Select the box(es) of the Carriages(s) that you would like to lock. A red box indicates a locked carriage and green box indicates an unlocked carriage. You can also enable or disable all of the carriages by selecting the “DISABLE ALL” or “ENABLE ALL” boxes. Select the green “CHECKMARK” icon to accept the changes, or select the red “X” icon to cancel the changes.

⚠️ **NOTE:** Locked carriages will display a red light on the Carriage Lock LED.
3.4.2 – Aisle Lock

An Aisle Lock can be used in one of two ways:

1. Locking an aisle to limit the access of the aisle.
2. Locking an unused aisle.

Select the “MASTER CONTROLLER” button from the Main Menu.

Select the “GLOBAL LOCKS” button from the Master Controller Menu.
Select the “AISLE” Lock button from the Global Locks Menu.
Select the box(es) of the aisle(s) that you would like to lock. A red box indicates a locked aisle and green box indicates an unlocked aisle. You can also enable or disable all of the aisles by selecting the “DISABLE ALL” or “ENABLE ALL” boxes. Select the green “CHECKMARK” icon to accept the changes, or select the red “X” icon to cancel the changes.

⚠️ NOTE: If the aisle is locked while it is currently open, it will remain open until the first move. Locked carriages will display a red light on the aisle lock LED.
3.5 Manual Reset

The manual reset option requires the user to press the reset key on the carriages of the open aisle after every move of the system.

Select the "MASTER CONTROLLER" button from the Main Menu.

Figure 3.5A

Select the Next Page Black "ARROW" button from the Master Controller Menu. Set the system accordingly, by pressing the "MANUAL RESET" button. The setting next to the button will alternate between "ON" and "OFF": If the system is in the Manual Reset mode, this would read ON.

Figure 3.5B
3.6 Close Direction

When the system security or park timer is enabled the **CLOSE DIRECTION** option indicates which direction the system should move – to the left or right.

Select the **MASTERC CONTROLLER** button from the Main Menu.

---

**Figure 3.6A**

![Diagram of administrator menu with options: Master Controller, Light Carpet, Carriages.

Select the Next Page Black “ARROW” button from the Master Controller Menu. Set the system accordingly, by pressing the **CLOSE DIRECTION** button. The setting next to the button will alternate between “LEFT” and “RIGHT”.

---

**Figure 3.6B**

![Diagram of master menu with options: Manual Reset, Close Direction, Timers.

OFF

Left

Timers

Right

Borroughs Aisle-Saver® Operator's Manual | REV09
3.7 User Set Up

The Administrator has the ability to allow specified users to access the system, when the SYSTEM SECURITY IS ENABLED. Individual users can be assigned a passcode that the system will recognize and specify which aisle each user will have access to within the system.

Sign in using your Administrator passcode. Select the “MASTER CONTROLLER” button from the Administrator Main Menu.

![Figure 3.7A](image-url)

Select the Next Page Black “ARROW” button from the Master Controller Menu. Select the “MANAGE USERS” button.

![Figure 3.7B](image-url)
3.7.1 – Add User

The Add User option allows the Administrator to add a user passcode into the system.

From the Manage Users Menu, select the “ADD USER” button. Enter a new passcode and press the green arrow to accept the change. The new code is now active. If you need to delete a number, press the red arrow. If you need to exit without making changes, press the red arrow multiple times, until the system goes back to the previous screen.

3.7.2 – Delete User

The Delete User option allows the Administrator to delete a user passcode from the system.

From the Manage Users Menu, select the “DELETE USER” button. Enter an active passcode to delete and press the green arrow to accept the change. The new code is now active. If you need to delete a number, press the red arrow. If you need to exit without making changes, press the red arrow multiple times, until the system goes back to the previous screen.

3.7.3 – User Aisle Access

The User Aisle Access option allows the Administrator to allow or restrict certain aisles to each user of the system.

From the Manage Users Menu, select the “AISLE ACCESS” button. Enter the passcode of the user that you will be changing the aisle access for. Press the green arrow on the number pad to accept the change. If you need to delete a number, press the red arrow. If you need to exit without making changes, press the red arrow multiple times, until the system goes back to the previous screen.
Select the box(es) of the aisle(s) that you would like to lock. A red box indicates a locked aisle and green box indicates an unlocked aisle. You can also enable or disable all of the aisles by selecting the “DISABLE ALL” or “ENABLE ALL” boxes. Select the green “CHECKMARK” icon to accept the changes, or select the red “X” icon to cancel the changes.

**Figure 3.7.3A**

![Aisle Access Editor](image_url)
3.8 Timers

The system has many different timers that can be enabled.

⚠️ **NOTE:** It is recommended by Borroughs that all timers be left in their default by the Administrator.

Select the “MASTER CONTROLLER” button from the Main Menu.

![Figure 3.8A](image)

Select the Next Page Black “ARROW” button from the Master Controller Menu and select the “TIMERS” button.

![Figure 3.8B](image)
3.8.1 – Delay Timer

Delay time is the time between when an aisle open key is pressed and when the carriages actually begin to move. This is usually used in conjunction with a warning horn and/or light.

Select the “DELAY” button and enter the specified amount of time. The default setting is 0 seconds.

3.8.2 – Auto Delay Timer

Auto Delay time is the time between when the system starts to close and when the carriages actually begin to move. This is usually used in conjunction with the park timer and/or fire park option, as well as with a warning horn and/or light.

Select the “AUTO DELAY” button and enter the specified amount of time. The default setting is 0 seconds.

3.8.3 – Park Timer

Park time is the time between the last system movement or activity and when the carriages automatically close.

⚠️ **NOTE:** The carriages will close in the direction set in Close Direction option.

Select the “PARK” button and enter the specified amount of time. The default setting is 0 minutes, which indicates that the function is off.
3.8.4 – Recycle Timer

Recycle time is the time between when the carriages will automatically cycle. This is usually used in museum applications to provide air to the artifacts.

Select the “RECYCLE” button and enter the specified amount of time. The default setting is 0 minutes, which indicates that the function is off.

3.8.5 – Time Out Timer

Time Out time is the maximum amount of time a carriage motor will continuously run without causing a safety reset.

⚠️ WARNING: This time setting should only be changed if instructed to do so by a Borroughs representative.

Select the “TIME OUT” button and enter the specified amount of time. The default setting is 30 seconds.