Rytec installation safety information

The meaning of signal words

**Summary**

Technical content produced by Rytec includes safety information which must be read, understood and obeyed to reduce the risk of death, personal injury or equipment damage. This information is boxed to set it apart from other text. The boxed text identifies the nature of the hazard and appropriate steps to avoid it.

The safety alert symbol identifies a situation that can result in personal injury. The accompanying signal word indicates the likelihood and potential severity of the injury. The meaning of the signal words is as follows:

- **WARNING**
  - Warning indicates a hazardous situation that, if not avoided, could result in death or serious injury.

- **CAUTION**
  - Caution indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Safety icons used in this manual

- Shock hazard
- Fall hazard
- Crush hazard
- Cut hazard
- Forklift

Installation safety

- Do not install any Rytec product until you have read and understood the safety information and instructions. Make sure all applicable regulations are observed and obeyed at all times.

- Observe these precautions while installing the door:
  - Only trained, qualified and authorized individuals are to install the door and the control system.
  - The installation site comprises the physical area required to safely uncrate, stage and install the door.
  - Make sure all personnel at the installation site have been informed of the date, time and location of the installation.
  - Make sure there is no pedestrian or vehicular traffic within the installation site for the duration of the installation.
  - Make sure you have and use all required Personal Protective Equipment.
  - Make sure you have adequate personnel and equipment to safely perform all lifts.
  - Make sure you have been informed of any hazardous conditions that exist within the installation site.
  - Make sure the installation site is kept clear of obstructions and debris and that the floor is dry.
  - Make sure you are aware of the location of all power lines, piping and HVAC systems within the installation site.
  - Make sure all accessories installed with the door are approved by the manufacturer.

Other icons used in this manual

- IMPORTANT Indicates instructions which, if not followed, could result in damage to the door or voiding of the warranty.

- TIP Indicates best practice. This is how Rytec Technical Support does the job.

Requirements – Staffing

- Two installers
- A licensed electrician is recommended for making all electrical connections

Electrician’s responsibilities

Refer to the Rytec System 4® Drive & Control Installation & Owner’s Manual for a complete list of the electrician’s responsibilities.

- WARNING
  - Electrical work must meet all applicable local, state and national codes.
  - Failure to wire the door correctly can cause shock, burns or death to the people who install, use or service the door.
  - Failure to comply also voids the warranty for the door.

Requirements – Site Conditions

- Installers must have unrestricted access to the door opening at all times during the installation.
- Make sure there is no pedestrian or vehicular traffic within the installation site for the duration of the installation.

Requirements – Lifts

- A forklift is mandatory for the safe and proper installation of this door.

- Forklift that meets the following specifications:
  - Minimum 4,000-pound lift capacity
  - Minimum height ability: door height + 12"
  - 48"–wide fork
  - Side shift capability

- Scissor lift that meets the following specifications:
  - Can hold both installers
  - Minimum height ability: door height

- Alternatively, two ladders of sufficient height to safely access the door head assembly
Terms used by Rytec to describe the parts of the door

This illustration shows the terms used by Rytec technical support to refer to the major components of your door.

Using these terms helps technical support provide assistance as quickly as possible.

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NEW in 2022 Spirals: SmartSurround™ light curtains and CAN bus cabling

Two new features have been added to Spirals in 2022, both of which change the installation process.

**CAN bus cabling**

The CAN bus system simplifies cabling and minimizes internal field wiring during installation, the system works this way:

- CAN bus cabling is a single chain (series) of cables that connect all CAN-enabled devices to the controller.
- The cabling starts at the controller and runs through the CAN repeater box in the head assembly, then the CAN repeater box at the base of the drive side side column, then across the rear spreader to terminate at the CAN distribution box at the base of the non-drive side side column.
- CAN-enabled Rytec devices can plug into any available port in any CAN box. For example the BTA4 can plug into a baseplate port if it is mounted to a side column, or a head assembly port if it is remotely mounted.
- Ports must be jumpered if they are not connected to a device so that the signal path remains unbroken until it terminates at the distribution box.

**SmartSurround™ light curtains**

The SmartSurround™ light curtains replace the Pathwatch LED strips, and combine the function of a light curtain and an alert system.

- Spiral doors now have three sets of light curtains:
  - The standard light curtains, now called the Advanced®, in the door track
  - One set of SmartSurround™ mounted on the side column covers (cover mounted)
  - Another set installed on the walls of the door opening (jamb mounted)
- The LEDs are larger and brighter than the Pathwatch, and display a sequence of lights that move up and down when the door opens, and closes, and that flash repeatedly whenever any of the detection planes are broken.

**Reversing edge**

The SmartSurround™ system, in combination with the Advanced® light curtains located within the door line, meets the requirements for entrapment protection. SmartSurround™ offers a contactless method of object recognition that is an improvement over the reversing edge system; this makes the reversing edge system redundant.

**Standard installations** of Spiral doors now have the reversing edge deactivated.

**Check the motor** to see if a wireless antenna is attached. If it is, follow steps to install the antenna and bracket (pp.19-20) and connect wire for reversing edge at controller (p.23).
How to uncrate the door and inspect the installation site

**Important**
Spirals ship in two crates (three if there is a slanted hood cover).
Each set of crates is marked with the unique serial number for the door and the number of crates used for the door.
All parts for the door are in these crates.
If more than one door is to be installed, treat each set of crates as a separate installation.

Mixing parts from different doors voids the warranty for all doors in the installation.

1. Remove all top panels.

   Panels are made of fiberboard that shreds easily, and are secured with many nails.

   Slide the pry bar along the edge, prying gently every six inches, to remove the panel in one piece.

2. Check the crates. Make sure all serial numbers match the number on the crate and all visible parts have no shipping damage.

   - Drive belt guard cover: indicates drive side. May be left (LH) or right (RH). LH is used for this manual.
   - Bottom head cover (optional): panels are created in front of head assembly and brackets are created under the lifting cradle.
   - Spring: number varies from one to twelve based on size of door.
   - SmartSurround™ light curtains: packed in tube inside side columns.
   - Side columns: check the serial number on the label.
   - SmartSurround™ light curtains (optional): third crate holds these segments.

3. Check your tools. Make sure you have all tools and supplies for the installation.

   **Tools you need**
   - Pry bar and mallet or reciprocating saw
   - Crowbar
   - Cutting pliers
   - Utility knife
   - Wire stripper
   - Precision screwdriver
   - Flat screwdriver
   - Phillips screwdriver
   - Torx screwdriver
   - Socket or open wrench (2)
   - Screwdriver
   - Shims
   - Calk
   - Cable ties
   - Electrical tape
   - Steel tape
   - Laser level
   - 2 Bar clamps
   - Measuring tape
   - Spirit level
   - Carpenter’s square
   - Anchoring tools
   - Anchoring hardware
   - Shims
   - Calk
   - Cable ties and anchors
   - Electrical tape and wire nuts

   You also provide:
   - Anchoring hardware
   - Shims
   - Calk
   - Cable ties and anchors
   - Electrical tape and wire nuts

**Small parts box(es):** check the serial number on side of box. There may be two boxes.

**IMPORTANT**
Open box, remove the red documents envelope, then open the envelope and get the object list (also called the cut sheet). Check serial numbers on both.

Parts and hardware that you find in the box(es) will be called out in this manual as they are needed.
Check the measurements. Make sure the door will fit in the installation site.

1. Locate the Door Width \( \text{a} \) and Door Height \( \text{b} \) on the object list.

   \( \text{Door Width (Inches):} \) 144-1/16

   \( \text{Door Height (Inches):} \) 128-3/8

2. Measure the door opening to make sure the width and height match the numbers on the object list.

3. Calculate the width to center: divide the Door Width \( \text{a} \) by 2.

   \[ \text{Width to center} = \frac{\text{Door Width (Inches)}}{2} \]

4. Find the total width of the door: measure the width of the head assembly \( \text{c} \) in the crate.

   \[ \text{Total width} = \text{Width to center} + \text{Width to center} \]

5. Calculate the total height of the door:

   a. Start with the Door Height \( \text{b} \).
   
   b. Measure the height of the head assembly \( \text{d} \) in the crate. Add this to \( \text{b} \).
   
   c. Add 13 inches (13") to account for the height of the forklift backrest or an optional slanted hood.

   \[ \text{Total height} = \text{Door Height (Inches)} + 13\text{"} \]

6. Make sure there is enough space to lift the door: make sure the site has space for the total width and the total height you calculated.

Call Rytec technical support at 800-628-1909 or email helpdesk@rytecdoors.com if you have any questions about the measurements at the site.
How to prep the head assembly

1. **Remove** springs, blocks and (optional) hood cover panels for clear access. **Use a forklift** to move the head assembly to an open space.

   **INSIDER’S TIP** After the head assembly is removed, **use the crate to stage parts until they are needed.**

2. **Locate and remove** the rear seal (rear spreader).
   - On smaller (-L and -L/R) doors, it is tied to the top rear spreader.
   - On larger (-S and -S/R) doors, it is tied to the back of the lifting cradle.

   **If the door has a slanted top hood cover,** the flashing will also be tied to the cradle.
   **If the door has a bottom hood cover,** the bottom hood spreader will also be tied to the cradle.


Extra large -S and -S/R doors are designated as -US and -US/R. **Note these differences:**

- The motor and encoder are located **outside** of the head assembly.
- The motor has an external cover. **Remove** this instead of the drive side console cover.
- There are **six preinstalled side column screws** and washers on each side of the door.

   On the drive side, two of these screws **will** require a wobble or swivel extension to tighten when the head assembly is installed.
- The encoder cable is routed differently from other Spirals.

3. **Remove** the belt guard cover.

4. If the door has a preinstalled flat top hood cover, **remove the top panels.**

   **Note:** number of panels varies based on size of door.

5. **Remove** the console cover and spacer bracket.
   **Do this** on both sides of the head assembly.

6. **Important** The screw that secures the mounting cradle is preinstalled behind the cover and bracket.
   **Do not remove** it until the head assembly has been lifted into place.
6. **Protect your cables!** On the drive side, reach into the back of the console and place the five cables inside on top of the head assembly. **Make sure** cables are clear of the side columns. **Leave the pulley and spring strap in place.**

7. **Remove** the five preinstalled side column screws (located in the shaded area). **Do this** on both sides of the head assembly.

8. **IMPORTANT** Protect the brake release cable!

   The cable is preinstalled, and can be damaged when the head assembly is raised onto the side columns. This extra step puts it out of harm’s way.

   - Unscrew the retaining nut, cut the cable tie and slide the cable through the hole in the console.
   - Slide the nut up the cable and reattach.
   - Coil the cable inside the console.

9. **-S and -S/R doors only:** look for the wall mount brackets at the top rear corners of the head assembly. **Remove** the screws and washers and **flip** each bracket so the flange points up. **Line up** bracket with the rear of the head assembly, then **reinstall** the screws and washers.

   - Brackets are labeled with yellow tags. **Remove tags** before flipping brackets.
   - If the door has a slanted top hood cover, **do not reinstall** the outer screws and washers until the cover is installed.

10. **Before lifting the head assembly,** **clamp** both forks so the fork pockets are secure.

    - STT-S: Full vision doors have a spacer at the rear of the head assembly. **Line up** bracket with spacer.
    - SST-S/R: Solid panel doors have no spacer.

**WARNING**

Do not lift the head assembly unless it has been clamped or secured to both forks of the forklift.
How to prep the side columns

1. Remove the covers on both side columns.
   Screws for side column covers run in a vertical line. There is also one screw at the base of the column.

   Check all surfaces on side columns and head assembly for protective film.
   Remove film.

   Cover connects through two cables labeled “01”.
   Keep covers intact – DO NOT remove screws that run horizontally (shaded area).

   The SmartSurround™ light curtain on the side column cover connects through two cables labeled “01”.
   Make sure the cables are disconnected when you remove the cover. You will reconnect them later.

2. Make sure the vertical guide tracks for the door panels are in the fully lowered position.

   Door ships with each track set below the lip of its side column.
   This protects the locating pins while the head assembly is being raised into place.

   After the head assembly is in place, raise the track to meet the curved track in the head assembly.
   The locating pins align the two tracks.

How to center the door in the door opening

Rytec doors are engineered to be centered in the door opening, so follow these steps even if the width of the opening and the production width match exactly.

1. Measure the width of the door opening (w) and find the halfway point (½w).
   Mark the centerline there.

2. Use the width to center from the object list (w = 0).
   Starting at the centerline, measure and mark the reference line for the first column.

3. Loosen the holders on the vertical guide track. If necessary, lower the track.
   Do this for both columns.
   Loosen, but do not remove, each pair of track holders.
   The number of holders varies based on the height of the column.
   The track should slide freely when you are done.

4. Select one holder at the halfway point of the side column and hand tighten the screws to secure the guide track in place. Do this for both columns.
   The tracks can now be repositioned easily after the side columns are installed, but will not slide while the columns are being lifted into place and leveled.
Spiral® SST and STT Installation Manual

Plumb, level, square: how to position the door correctly as you install the side columns

**IMPORTANT**
Call Rytec technical support at 800-628-1909 immediately and stop the installation if you are not able to correctly position the door.

**Before you begin: where to find the anchor points on the Spiral side columns**

There are four sets of anchor holes (①, ②, ③, ④) at the top of each side column.
- Use at least one anchor in each set of anchor holes: ①, ②, ③, and ④. Anchor both holes unless conditions at the installation site prevent this.
- Position anchors at the **horizontal center** of the anchor holes.

There are three anchor holes (①, ②, ③) in the baseplate of each side column.
- You must use at least two baseplate anchors.

To access all three anchor holes:
- Remove the bolts and move the bracket and CAN terminal out of the way. Make sure you do not disconnect any cables when moving the bracket.

**How to anchor the door:**
- Use 1/2" diameter through bolts, 1/2" diameter threaded rods or equivalent to anchor the side columns.
- Anchoring hardware and materials must be provided by the door owner or installer.
- Make sure the anchors do not interfere with the moving parts of the door.
- Position anchors at the **horizontal center** of the anchor holes.

**Step 1: Plumb and level the site, then install and plumb the side columns**

1. **Plumb** the door opening. If the wall is not plumb, or there is bowing or an obstruction in the wall, shim the columns.

   **IMPORTANT**
   To prevent column from bowing, shim as needed **at each anchor point**.

2. **Level** the floor.

   **Measure** distance from floor to laser line on both sides of door opening.

   - **If measurements are the same**, the floor is level.
   - **If measurements are not the same**, shim the side with the larger number. Use the difference for the height of the shim. Measurements should match when you measure with the shims in place.
3 If the floor is level, install the drive side column first.
   If the floor is not level, install the side column that is not shimmed first.

4 Clamp the first side column into place.
   - On taller doors, set a second clamp.
   - Set clamp inside guide track above light curtain.
   - Align baseplate against reference mark you made when you centered the door.

5 Plumb the side column.
   - Use the screws on the track holders as your reference.
   - These give the best reference for plumb.

6 Remove the bolts and move the bracket and CAN terminal to allow access to all anchor holes 1, 2, 3.
   Make sure you do not disconnect any cables when moving the bracket.
   Leave the brackets loose until the installation is complete.
   See How to install the wall mounted (rear) SmartSurround™ light curtains on page 21.
   Do this on both side columns before anchoring.

7 Anchor the first side column to the wall at the top of the column and baseplate.
   Set anchors tight. Remove clamp.
   Make sure you have read Before you begin on page 9 before you start.

8 Measure and mark the reference mark for the second side column.
   Use the production width from the object list.
   Measure and mark the reference line for the other column.
9 Clamp the non-drive side column into place.

On taller doors, set a second clamp. 
Set clamp inside guide track above light curtain.

Align base plate against reference mark.

10 Anchor the second side column to the wall at the top of the side column and baseplate. **IMPORTANT** DO NOT SET ANCHORS TIGHT until you have squared the door. 
**Make sure** you have read Before you begin on page 9 before you start.

11 Set a laser line parallel to the wall 1" (one inch) in front of columns. **Make sure** the line is parallel to the wall.

Measure the distance from the wall to the laser line at multiple locations. 
Adjust angle of laser level until all measurements match.

12 Plumb the side columns to each other. 

Measure distance from front of each column to laser line. 
**Distances** must match.

13 If necessary, shim the side columns so they are plumb to each other.
Step 2: Install the rear seal

1. Install bolts on both sides of the seal and hand tighten.

2. Make sure the back of the seal is flush with the back of the side column and that there is direct contact with the wall.
   - If necessary, shim the seal where it meets both side columns and at the anchor point so that both conditions are met.

3. Make sure the rear seal is level.
   - Anchor rear seal to wall at all anchor points.

4. Tighten the bolts on both sides of the seal.

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Step 3: Replumb and square the door and finish anchoring the side columns

1. Plumb both side columns from the front again. Realign if necessary.
   - Use the screws on the track holders as your reference.

2. Square the door:
   - Measure distance between side columns at top and bottom of columns ①.
     Make sure the distances are the same.
   - Measure distance from bottom corner of drive side to top corner of non-drive side, then from bottom corner of non-drive side to top corner of drive side ②.
     Make sure the distances are the same.

3. Tighten all anchors.
   - Use measuring tape for precise measurements.
How to install the head assembly

1. Line up the head assembly with the side columns before lifting.

2. Make sure the area between the head assembly and side column is clear on both sides.

3. Line up holes.

4. Secure the head assembly to the side columns. Do this on both sides of the head assembly.

   - Start at the top and work around the screw holes.
   - Install screws and washers and hand tighten. When all screws are seated, tighten screws.

5. -S and -S/R doors only: loosen the screws on the wall mount brackets. Place the brackets flush to the wall and anchor the brackets.

   - Use at least one anchor on each side of the bracket.

   - If the door has a slanted top hood cover, do not install the outer anchors until the cover is installed. Make sure the outer screws, washers and nut are not installed.

   - Rear screw connects to flanged nut.
   - Front screw connects to riveted nut.

How to remove the cradle

1. Remove the two screws that attach the cradle to the head assembly. Do this on both sides of the head assembly.

   - Remove the cradle by backing up, then lowering.
How to raise the vertical guide tracks into place

1. **Make sure** that all of the vertical guide track holders are loose enough to allow the track to move freely. 
   DO NOT remove any of the holders.

2. **Make sure** the pins at the top of the vertical guide track ① align with the holes in the head assembly track ②. 
   Use a **pry bar** to lift and hold the vertical guide track in place.

3. **Tighten** the bolts on the track holders. 
   - Start at the **middle of the track** and work toward the top and bottom. 
   - **Make sure** the holder is at a 90° angle to the track before tightening the bolt. 
     You will need to hold it in place while tightening to keep it level. 
   - **Make two full passes** from top to bottom: tighten bolts to snug on the first pass, then fully tighten on the second pass.

   ![CAUTION]
   Make sure your fingers are clear of the bolt when tightening. Power tools are not recommended.
**How to install the springs**

1. **Make sure** the total number of springs in the crate matches the number listed in the object list. The object list also shows how to divide the springs between the side columns.

2. **Make sure** the preinstalled spring straps on both sides of the head assembly match the table below for the total number of springs in the door.

### Locate

Find the parts and hardware in the small parts box: springs, spring straps, guide tubes, strap bracket, guide brackets, and clamp. Each assembly includes:

- 1-3 springs
- guide tubes
- a guide bracket
- a strap bracket
- A spring strap and clamp preinstalled in head assembly
- A strap bracket in small parts box
- A guide bracket in small parts box
- A guide tube in small parts box

### Parts of the spring assembly

- Baseplate tube (preassembled to baseplate)
- Spring in crate
- Spring strap and clamp preassembled in head assembly
- Guide bracket in small parts box
- Guide tube in small parts box

<table>
<thead>
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<th>Total number of springs</th>
<th>Drive side</th>
<th>Non-drive side</th>
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<tbody>
<tr>
<td>1</td>
<td>Springs</td>
<td>Springs</td>
</tr>
<tr>
<td></td>
<td>Spring strap</td>
<td>Spring strap</td>
</tr>
<tr>
<td></td>
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<tr>
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<td>12</td>
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</table>

**Hardware**

- (In small parts box)
  - Hardware to attach outer guide brackets to side column wall
  - Hardware to attach inner guide bracket to outer guide bracket
NOTE: a four-spring, two-assembly configuration is shown for these steps.

It is recommended that you do not use power tools for these steps. Overtorquing screws can damage parts.

2. Install the guide tubes into the guide bracket. Squeeze the top of the tube, then slide the tube into a guide hole until it clicks into place.

3. Install the bracket into the side column.

4. Slide the top of the springs into the bracket.

5. Slide the bottom spring tabs into the wide slot ①, through the narrow ②, then pull up into the retaining slot ③. The spring should remain upright.

6. Make sure the number of wraps for the spring strap matches the object list ①. Look through the front of the console or temporarily remove the top access cover.

7. Cut the cable tie on the outer spring strap and let it drop.

8. Loosen the clamp on the spring strap.

9. Position the spring bracket so that the bumpers and locking tab face the side wall.

10. Loop the spring strap around the bolt in the spring bracket. Thread the strap between two plates of the clamp. Hand tighten the clamp nuts. Make sure the clamp stays two inches (2") above the bracket.

11. Set the spring tension. This is the distance the springs must be stretched to provide the correct tension for the door.

**IMPORTANT**

- Set the spring tension. This is the distance the springs must be stretched to provide the correct tension for the door.

**Measure** the distance between the bottom of the spring bracket and the top of the spring tab (shaded area).

<table>
<thead>
<tr>
<th>Measurement</th>
<th>0.03</th>
<th>0.125</th>
<th>0.375</th>
<th>0.625</th>
<th>0.875</th>
<th>1.125</th>
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<td>1/8</td>
<td>5/32</td>
<td>3/16</td>
<td>7/32</td>
<td>1/4</td>
<td>9/32</td>
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<td>0.281</td>
<td>0.375</td>
<td>0.354</td>
<td>0.438</td>
</tr>
</tbody>
</table>

**Measure** the distance between the bottom of the spring bracket and the top of the spring tab (shaded area).

- Position the spring bracket so that the bumpers and locking tab face the side wall.

**IMPORTANT**

- Set the spring tension. This is the distance the springs must be stretched to provide the correct tension for the door.

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<td>1/16</td>
<td>1/8</td>
<td>5/32</td>
<td>3/16</td>
<td>7/32</td>
<td>1/4</td>
<td>9/32</td>
<td>5/16</td>
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<td>0.375</td>
<td>0.234</td>
<td>0.234</td>
<td>0.281</td>
<td>0.375</td>
<td>0.354</td>
<td>0.438</td>
</tr>
</tbody>
</table>

- Install the guide tubes into the guide bracket.

- Slide the bottom spring tabs into the wide slot ①, through the narrow ②, then pull up into the retaining slot ③. The spring should remain upright.

- Make sure the number of wraps for the spring strap matches the object list ①.

- Look through the front of the console or temporarily remove the top access cover.

- Position the spring bracket so that the bumpers and locking tab face the side wall.

- Loop the spring strap around the bolt in the spring bracket. Thread the strap between two plates of the clamp. Hand tighten the clamp nuts. Make sure the clamp stays two inches (2") above the bracket.

- Set the spring tension. This is the distance the springs must be stretched to provide the correct tension for the door.

**IMPORTANT**

- Set the spring tension. This is the distance the springs must be stretched to provide the correct tension for the door.

**Measure** the distance between the bottom of the spring bracket and the top of the spring tab (shaded area).

<table>
<thead>
<tr>
<th>Measurement</th>
<th>0.03</th>
<th>0.125</th>
<th>0.375</th>
<th>0.625</th>
<th>0.875</th>
<th>1.125</th>
<th>1.375</th>
<th>1.625</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>1/16</td>
<td>1/8</td>
<td>5/32</td>
<td>3/16</td>
<td>7/32</td>
<td>1/4</td>
<td>9/32</td>
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- Install the guide tubes into the guide bracket.

- Slide the bottom spring tabs into the wide slot ①, through the narrow ②, then pull up into the retaining slot ③. The spring should remain upright.

- Make sure the number of wraps for the spring strap matches the object list ①.

- Look through the front of the console or temporarily remove the top access cover.

- Position the spring bracket so that the bumpers and locking tab face the side wall.
12. **Adjust** the strap until the measured distance matches the object list and the distance from the clamp to the bracket is two inches (2”).

13. **Remove** the nuts and **retrieve** the third clamp plate.

   - **Loop** the spring strap down between the second and third clamp plate.
   - **Tighten** the nuts to secure the strap.
   - If necessary, **trim** excess strap length.

14. **Release** each spring from the baseplate tube.

   - **Lift** each spring and **slide** the spring tab into the slot in the spring bracket.

15. **Stretch** the springs downward.

   - **Slide** the bottom spring tabs into the wide slot (①), through the narrow (②), then **pull up to lock** it into the retaining slot (③).

How to install the locking collars at the top and bottom of the springs

1. **Install** collar into the top tab:

   - ① Slide the opening in the collar onto the tab.
   - ② Twist, then push the collar across the tab (the collar is flexible and will bend open enough to fit).
   - ③ Push the short end around until it clicks into place.

2. **Follow** the same steps for the tab at the baseplate pulley assembly.

How to install a second assembly in the side column

1. **Install** the guide tubes into the second bracket. **Install** the second bracket above the first bracket.

2. **Follow** steps 4-15 for installing the springs.

   - **Make sure** the spring bracket bumpers face out, toward the first spring assembly.
How to install the secondary drive belt

1. **IMPORTANT** Make sure the secondary drive belt is kept taut throughout these steps.
   - The belt is preinstalled around the pulley ①.
   - The door panel end bracket ② is connected at the precise height to keep the door panel level.
   - The belt is kept taut to the pulley and end bracket during crating by two cable ties ④.
   - If the belt becomes loose before it is secured to the baseplate, it can skip a tooth in the pulley. This will cause the door panel to run crooked and damage the door.

   Keep downward pressure on the secondary drive belt until the baseplate pulley assembly ③ is installed and the belt has been properly tensioned.

2. Pull the secondary drive belt and baseplate pulley assembly out of the console. Lower them down the side column.

3. Grab the belt below the cable ties and pull gently downward to keep the belt tight. Cut the two cable ties to release the belt.

4. Remove the top nut on the front baseplate mounting post. Keep the nut. Loosen the top nut on the rear mounting post.

5. Set the height of the top nut on the rear baseplate mounting post ⑤.
   1. Slide the rear flange of the baseplate pulley assembly ② under the top nut until it touches the post.
   2. Press down on the front of the pulley assembly as hard as you can ⑤.
      - The top nut is at the correct height when three (3) threads of the front mounting post clear the front flange.
   3. Adjust the height of the nut as needed to reach the correct height.

6. Set the tension of the belt.
   1. Replace the top nut on the front mounting post. Tighten the nut to increase the tension on the belt.
   2. Grab the belt as close as possible to the midpoint with one hand. Press the front and rear legs of the belt together between your fingers and thumb.
      - The tension is correct when it requires considerable effort to bring the legs together.
   3. Adjust the height of the top nut as needed to reach the correct tension.
How to install the corner brackets, (optional) bottom hood spreader and (optional) wireless antenna

1. Locate the corner brackets, wireless antenna arm and hardware in the small parts box.
   - Install a corner bracket on each side column.
     - The drive side bracket holds the wireless antenna arm and has an extra screw hole to secure the side panel cover.
     - The non-drive side bracket has an extra screw hole to secure the side panel cover.
   - NOTE: depending on the configuration of the door, the drive side may be on the left (LH) or right (RH) side of the door. These steps show a left hand (LH) door.

2. If the door has a bottom hood spreader:
   - Locate the two spreader brackets and hardware for the bottom hood spreader in the small parts box
   - Locate the bottom hood spreader.

3. Attach the spreader brackets to the bottom hood spreader.

4. Install the corner brackets.
   - If the door has a bottom hood cover, install the bottom hood spreader inside the corner bracket, using the same screws.
   - Do this on both sides of the head assembly.

5. If the door has an optional wireless antenna (reversing edge activated)
   - Install the wireless antenna arm onto the drive side corner bracket.
   - Use the hardware included with the wireless antenna arm.

---

If the door has an optional bottom hood spreader:

- L and -L/R doors: 4 screws and nuts
- S and -S/R doors: 8 screws and nuts
Reach into the drive side compartment and remove the wireless antenna and antenna bracket from the top of the motor. 
Unwrap the antenna cable.

Install the wireless antenna bracket onto the arm. 
Use the hardware included with the wireless antenna arm. 
Secure the cable to the wireless antenna arm with cable ties.

-US and -US/R doors only: rout the cable to the wireless antenna around the side column and through the gap between the drive side console and the side column. 
Install the bracket and secure the cable.

Inside the drive side console, connect the M12 CAN connectors:
- The male M12 for the cable from the CAN port in the side column to the female M12 connector for the cable to the CAN port in the head assembly.
- The female M12 for the cable from the CAN port in the side column to the male M12 connector for the cable that crosses the rear spreader.

IMPORTANT
Line up the embossed arrows on the connectors to align the guide notch and contacts correctly. The connectors will only fully connect if they are aligned correctly.

Inside the non-drive side console, connect the M12 CAN connectors:
- The male M12 for the cable from the CAN port in the side column to the female M12 connector for the cable that crosses the spreader.

Line up the embossed arrows on the connectors to align the guide notch and contacts correctly. The connectors will only fully connect if they are aligned correctly.

Find the schematics for the door in same box that holds the System 4® controller. 
Check the crate and small parts boxes for accessories such as activators or safety devices and any schematics included with them.
If the schematics indicate the door has non-standard wiring, follow the schematics instead of this manual.
How to install the jamb mounted SmartSurround™ light curtains

1. Get the jamb mounted SmartSurround™ transmitter and receiver from the kit.
   **IMPORTANT**
   Make sure the jamb mounted and cover mounted SmartSurround™ transmitters are both on the non-drive side of the door.
   Make sure the jamb mounted and cover mounted SmartSurround™ receivers are both on the drive side of the door.
   Check the labels at the bottom of the light curtains to match.

2. Install the jamb mounted SmartSurround™ light curtains and cables onto the drive side and non-drive side walls of the door opening.

   - Use supplied anchored or self-tapping screws to secure light curtains and P-clips.
   - Use two (2) supplied P-clips to secure cable tightly to wall.
   - Place one clip one to two inches (1-2") from SmartSurround™
   - Place the other clip one to two inches (1-2") from side column
   - Cable should run parallel to floor
   - If the floor is level, use the cover mounted SmartSurround™ and a laser level to set the mounting height of the wall mounted light curtain.
   - The bottom of the aluminum retaining bracket should be 4" above base plate.

   **SMALL PARTS**
   - 0550150
   - 5550350
   - 5550353
   - 1210877

How to complete the installation of the CAN bus cables

1. Connect the two cables that connect the jamb mounted SmartSurround™ light curtain to the CAN port.

   - Line up the embossed arrows on the connectors to align the guide notch and contacts correctly.
   - The connectors will only fully connect if they are aligned correctly.

2. Reinstall the CAN bus brackets in both side columns.
   - If possible, reconnect the cables labeled "01" before reinstalling the side column covers.

3. Reinstall the side column covers.
   - Use one screw each to hold them in place; it may be necessary to open them to make adjustments during testing.
   - Do not secure them fully until all testing is complete.
   - Reconnect the two cables labeled "01".
   - Line up the embossed arrows on the connectors to align the guide notch and contacts correctly.
   - The connectors will only fully connect if they are aligned correctly.

4. Remove the protective film from the Advanced3 light curtains and the SmartSurround™ light curtains installed on the side column covers.

   **KEEP REUSE**
   - 5550300
   - 13mm
   - T40

   **IMPORTANT**
   Route cables through hole in the side column, through the first opening in the baseplate bracket, and through both openings in the CAN bracket.
(Optional) Check if the door has an MS4 or BTA4 user terminal

1. Check the small part box to see if an optional BTA4 (shown at left) or MS4 (shown at right) user terminal is included in this installation.

Both terminals can be mounted either on a side column or remotely, and both connect to the CAN bus system.

The frame and cabling for side column mounted BTA4 terminals are preinstalled at Rytec.

All other mountings must be field installed.

How to install the BTA4 user terminal frame remotely

**IMPORTANT** Check with the door owner where they want the BTA4 installed remotely.

1. Cut out the drilling template on this page for the BTA4 unit.

   Use the template to drill the four screw holes in wall near the door.

   Match the drill bit to the supplied hardware or your own.

   Match the correct depth for the hardware.

   Use a step bit to drill the large hole for the cable.

   **IMPORTANT**

   NOTE: If the wall mount does not make it possible to run the cable inside the wall, you can run the cable out of the bottom of the frame.

2. If you are mounting the unit to the wall and cannot run cable inside the wall, snap off the perforated tab at the bottom of the frame.

   **IMPORTANT**

   NOTE: If the unit cannot be securely mounted to the side column using these specifications, the unit should be mounted to the wall.
3. **Install** the BTA4 frame using the supplied hardware for wall mounting, or your own.

4. **For side column mounting,** install the grommet into the cable access hole.

---

**Back of BTA4 template**

Intentionally left blank
How to connect the BTA4 user terminal to the CAN bus system

1. Connect the BTA4 to the CAN bus system.

   - Remote mounting: Remove jumper from Port 1 in the head assembly repeater box and plug in BTA4 cable here.
   - Side column mounting: Place anchors 6" below BTA4 access hole, 6" above CAN bracket, and halfway in between.
     Wipe surface with supplied alcohol wipes before applying anchors.
     Route cable through anchors and upper notch in bracket.

   - Side column mounting: Remove jumper from Port 1 in the baseplate distribution box and plug in BTA4 cable here.

How to install the MS4 user terminal

1. Locate the MS4 user terminal, mounting brackets and hardware in the small parts box.

   - IMPORTANT: Check with the door owner whether they want the MS4 installed into the side column or remotely.

2. Anchor the user terminal at an easily accessible height using the included hardware.
   - The user terminal can be mounted onto the wall, flush to the wall using the optional bracket, or onto the side column using the optional z-bracket.

   - Side column mount:
     1. Remove plate from non-drive side column.
     2. Install the user terminal onto the z-bracket using supplied hardware.
     3. Install bracket onto side column using screw holes from plate.

   - Flush mount (in-wall installation):
     1. Cut hole: 6-3/8"W x 11-1/2"H.
     2. Install the user terminal onto the flush mount bracket using supplied hardware.
     3. Anchor bracket to wall using supplied hardware.
     4. Install the cover plate.
How to connect the MS4 user terminal to the CAN bus system

1. Connect the M8 flying lead cable to the head assembly repeater box and route it to the MS4 user terminal.

2. Loosen the six screws and remove the cover plate. Loosen the cord grip and thread the M8 flying lead into the user terminal.

3. Trim jacket on M8 flying lead to expose wires, and connect wires to terminals 380-383.

4. Tighten the cord grip, replace the cover and reinstall the six screws.
How to connect the brake release cable to the brake release lever

1. Locate the brake release cable in the console.
   - Loosen the retaining nut and slide it down the length of the brake release cable.

2. Thread the cable through the hole in the bottom of the console.
   - Thread the retaining nut up the cable and install into the bottom of the console.
   - Run the cable down the side column to the brake release lever.

3. Pull the cable straight.
   - Allow some slack.
   - Pull down the brake release lever to 90°.
   - Run the cable through the large hole in the brake release tab.

4. Loosen the screw on the cable stop clamp until you can thread the cable through the clamp.
   - Slide the clamp against the lever tab and tighten.

5. Pull down the brake release lever to the fully released position.

   **IMPORTANT**
   There will be some resistance when you push the lever down, but it should not require excessive force to reach the fully released position.
   If you feel too much resistance, loosen the tension on the cable.

6. The door panel should release under its own weight and drop approximately 1/3 of the door height.
   - If it does not drop, manually pull the door panel down to that height.

7. Pull up the brake release lever 180° to the fully engaged position.

8. Try to manually move the door panel up and down.
   - You should NOT be able to move the panel.

9. If necessary, adjust the tension on the cable until both conditions are met:
   - The door moves freely when the brake release level is in the fully released position.
   - The door does not move when the lever is in the fully engaged position.

10. Release, then reengage, the brake several times. Test after each time.
    - Make sure the cable does not loosen after multiple uses.
    - If necessary, adjust the tension on the cable.
    - When all tests are complete, you can trim the cable (minimum trim length = 4”).

**IMPORTANT**
Make sure the clamp is tight enough to hold when pressure is applied.
DO NOT trim the cable until the brake release has been fully tested.
(optional) How to install the bottom hood cover

It is recommended that you do not use power tools for these steps. Overtorquing screws can damage the riveted nuts that secure them.

1. **Locate the spacer brackets and hardware in the small parts box.**
   - Locate the bottom hood cover panels and bottom splice brackets (mounting brackets) in the crate.
   - -L and -L/R doors may have 2, 3 or 4 panels. -S and -S/R doors may have 2, 3, 4 or 5 panels. -US and -US/R doors have 6 panels.

2. **-L and -L/R doors only:** if necessary, remove all front cover panels to access the front splice brackets.

3. **Install** the spacer bracket from the small parts box onto the side console.
   - Do this on both sides of the head assembly.

4. **Install** the splice brackets for the bottom hood cover panels.
   - On -L and -L/R doors, the brackets attach to the front splice brackets and the bottom hood spreader.
   - On -S, -S/R, -US and -US/R doors, the brackets attach to the bottom front spreader and the bottom hood spreader.

5. **Install** the bottom hood cover panels.

---

**SMALL PARTS**

- Number of screws varies based on height and size of door

- **01900820**
  - 2

- **01901508**
  - 4

- **01900820**
  - 5-6
(optional) How to install the slanted top hood cover

It is recommended that you do not use power tools for these steps. Overtorquing screws can damage the riveted nuts that secure them.

1. Locate the top hood cover panels and splice brackets in their crate.
   - L and -L/R doors may have 2, 3 or 4 panels. -S and -S/R doors may have 2, 3, 4 or 5 panels. -US and -US/R doors have 6 panels.
   Locate the flashing. There should be two long segments (three for -US and -US/R) and two short side segments.
   Locate the hardware in the small parts box.

2. -L and -L/R doors: install the end splice bracket. Do this on both sides of the head assembly.

3. -L and -L/R doors: install the rest of the splice brackets.


5. -S, -S/R, -US and -US/R doors: finish anchoring the wall mount bracket through the splice bracket. Do this on both sides of the head assembly.

Use hardware saved in Step 10 on page 6. Rear screw connects to flanged nut. Front screw connects to riveted nut.

Use at least one anchor point through the splice bracket and the wall mount bracket.

Anchoring hardware

7. **All doors:** install the top hood cover panels.
   - Install panels left to right: each panel overlaps the panel to the left.

8. **Align side flashing** with top of hood cover, place flashing tight against the cover and anchor in place. Do this on both sides of the head assembly.

9. **Align top flashing** with end of side flashing, place flashing tight against the cover and anchor in place.
   - The two sections of top flashing overlap by 1-5/8" (40mm).
How to install the System 4 controller and wire the door

**WARNING**

All electrical work must meet all applicable local, state and national codes. It is recommended that all electrical work be done by a certified electrician. Failure to wire the door correctly could result in shock, burns or death to the people who install, use or service the door.

**WARNING**

The high-voltage power to the controller must be properly grounded. Improper grounding could result in shock, burns or death to the people who install, use or service the door, as well as catastrophic motor failure.

If the service is floating, ungrounded or open delta type power, an isolation transformer must be installed.

Metal conduit entering the bottom left of the control box contacts the metal protection ground plate inside the controller. If non-metallic conduit is used, a protection ground conductor must be used.

**IMPORTANT**

The System 4 installation must meet all of the standards and follow all of the steps shown in these instructions. Failure to do so voids the warranty for the door.

- The high-voltage and low-voltage conduits must be separated by a distance that meets all applicable federal, state and local codes and regulations.
- Wires must be cut to length. Do not loop wires or leave excess length untrimmed.
- Use shielded wiring where indicated in these instructions.
- If you splice wires:
  - You must use the same gauge wire for the entire length. Gauge is listed in the steps in these instructions.
  - All spliced field wiring must maintain the voltage and temperature rating supplied by Rytec.

Contact Rytec technical support at 800-628-1909 or email helpdesk@rytecdoores.com before starting the installation if you cannot meet any of these standards or have questions about how to implement them.

Before you begin

1. **Make sure** you have all supplies and tools.

   **Supplies that you provide**
   - Conduit for high-voltage and low-voltage wiring
   - Mounting hardware for controller (3 anchors)

   **Tools you will need**
   - Power drill
   - Step drill bit
   - #2 Phillips screwdriver
   - T20 Torx screwdriver
   - Precision screwdriver
   - Wire tool
   - Cement drill (if needed to mount controller)

2. **Check** the job site.
   - The ambient temperature must be between -4°F and 149°F at all times.
   - NOTE: for freezer doors, the controller and fused disconnect must be mounted on the warm side of the door.
   - The mounting surface for the System 4 controller and fused disconnect must be structurally sound and free of mechanical shock and vibration.

3. **Install** the high-voltage power supply.
   - Provide a high-voltage power supply that matches the electrical spec for the System 4 controller.
   - A fused disconnect is recommended. Fuses must meet NEC code for FLA listed on the electrical spec for the System 4 controller.

4. **Make sure** the high-voltage and low-voltage cables from the head assembly of the door are separate. Cables may be routed through the top or bottom port at the back of the belt guard cover.
   - Label the controller end of the cables. Label them again if you cut or trim them.
How to install the System 4 controller

1. **Open** the System 4 controller box and **remove** the controller and ferrite filters. **Loosen** screws on the control box and **open** the cover panel.

2. **Install** the control box onto the wall using the hardware you have supplied.

3. **Drill** holes through the bottom of the control box for the conduit.

   - Conduit must enter through the bottom of the control box. **Drilling holes in the front, back, top or sides of the control box voids the warranty.**
   - High-voltage wires must enter through the left side of the box bottom.
   - Low-voltage wires must enter through the right side of the box bottom.
   - Holes must be drilled. The indentations in the box bottom are not knockouts.

How to install the high-voltage wiring

**WARNING**

Set the disconnect switch to the OFF position and perform a lockout/tagout of the high-voltage disconnect before installing wiring to the controller. Do not set the disconnect switch to the ON position until the wiring installation is complete and the controller is fully earth grounded per instructions.

Failure to comply could result in shock, burns or death.

1. **Connect** the supply voltage wiring from the disconnect.

   - **Do not** use power tools.
   - **For terminals**
   - **For ground bar**

   Maximum torque for all screws is **2.5 in-lbs.**

   Place one large ferrite filter around all three wires, and one small filter around each individual wire.

   Wire colors shown are for a 460V power source.
   Wire colors for 230V power are L1=red, L2=black, L3=blue.

Verify that the serial number and electrical specs for the controller match the door. **Locate** the 120Ω resistor for testing the CAN bus.

Find the schematics for the door in same box that holds the System 4® controller. **Check the crate and small parts boxes** for accessories such as activators or safety devices and any schematics included with them. If the schematics indicate the door has non-standard wiring, follow the schematics instead of this manual.
2. Connect the high-voltage wiring from the motor.
   Shielding: braided copper mesh and drain wire

   **Maximum wire length between motor and controller:**
   100’ (one hundred feet).

   The shield (braided copper mesh) and drain wire (bare metal) must be in contact with the P-clip.
   **To ensure a tight contact:**
   1. Loosen the P-clip.
   2. Strip high-voltage cable jacket to expose braided shield, then pull back shield and wrap drain wire around it.
   3. Run wires, shield and wrapped drain wire under clip.
   4. Tighten clip.
   5. Trim excess drain wire.

   **How to install the low-voltage wiring**

   1. Connect the brake wiring from the motor.
      Shielding: unshielded

   - Low-voltage wires can be run in the same conduit.
   - All low-voltage wiring must be 24 VDC+ only, installed per NEC to Class II power supply requirements.
   - Maximum torque for all System 4 controller screws is 2.5 in-lbs.
   - DO NOT use power tools.

   2. Connect the wires from the proximity sensor.
      Shielding: unshielded

   16 AWG

   - Connect
   - Shielding: 16 AWG

   18 AWG

   - Connect
   - Shielding: 18 AWG

   24 AWG

   - Connect
   - Shielding: 24 AWG
**3. Connect the wiring from the encoder.**

**Shielding:** metal foil and drain wire

**IMPORTANT**
Encoder wiring must not be spliced unless you have consulted with Rytec technical support at 800-628-1909.

**24 AWG**

The drain wire (bare metal) must be in contact with the P-clip.

To ensure a tight contact:
1. Loosen the P-clip.
2. Strip encoder cable jacket to expose wires.
3. Trim and bend red, pink, gray and blue wires. Tape to jacket.
4. Wrap drain wire around jacket and unused wires.
5. Slide cable under P-clip and tighten. Make sure there is maximum contact between clip and drain wire.
6. Trim excess drain wire.

**IMPORANT**
Pink wire in encoder cable is trimmed and tied off if reversing edge is deactivated (standard installation - no wireless antenna)

Pink wire connects to terminal 272 if reversing edge is activated (optional - wireless antenna included)

**4. Connect the CAN bus wiring.**

**Shielding:** wire mesh

**20 AWG**

The shielding (braided wire mesh) is used as a fifth "wire" and plugs into terminal SH.

To ensure a tight contact:
1. Trim CAN bus cable so it reaches COM board, plus six inches (6") additional length.
2. Trim jacket to expose wire mesh shielding.
    - IMPORTANT DO NOT cut through shielding.
3. Twist shielding into fifth wire to terminal block.
    - IMPORTANT Make sure shielding is twisted tight enough to fit into terminal.
4. Use heat shrink tubing or electrical tape to insulate the shielding so only one quarter inch (1/4") is exposed.
5. Trim other wires to expose one quarter inch (1/4") of clean copper.
Before powering up the door

**WARNING**

It is recommended that this pretest be done by a certified electrician.

1. **Make sure** the power to the door is correct.
   - Open the System 4 control box and check the power supply listed on the label inside.
   - Test the voltages at the disconnect. Test leg to leg and leg to ground.
   - If power is correct, power up the door and start the set limits sequence.

**Make sure** the protective film has been removed from ALL light curtains on both sides of the door before turning on power to the door.

Inform the door owner that Rain-X® 620036 Plastic Treatment applied to the light curtains reduces static and helps keep them clear of dirt and dust. Available at more hardware stores.

How to sync the SmartSurround™ system to the controller, set limits, and test the door

**CAUTION**

Make sure that people and vehicles do not pass through the open doorway until the automatic calibration is complete. The door can open or close unexpectedly, resulting in injury.

First: set the controller to Parameter mode and access Service level parameters

<table>
<thead>
<tr>
<th>Do This</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Turn on power to controller.</td>
</tr>
<tr>
<td>2</td>
<td>until the parameter screen displays</td>
</tr>
<tr>
<td>3</td>
<td>2x to reach parameter P:999</td>
</tr>
<tr>
<td>4</td>
<td>1x to move cursor to the right (edit value)</td>
</tr>
<tr>
<td>5</td>
<td>16x to set value to hexadecimal 10</td>
</tr>
<tr>
<td>6</td>
<td>until question mark changes to checkmark (value saved)</td>
</tr>
<tr>
<td>7</td>
<td>The controller automatically moves to parameter L:201.</td>
</tr>
</tbody>
</table>

NOTE: The System 4 display uses hexadecimal numbers to number parameters and for some values.

- The display uses the ten numeric characters (0-9), plus six letters (A-F), which represent the values from 11 through 16.
- In some cases it will be necessary to press the UP arrow sixteen times to change a value from 0000 to 0010.

The Controller Display

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Access level</th>
</tr>
</thead>
<tbody>
<tr>
<td>P: Password 001</td>
<td>0 (operator level)</td>
</tr>
<tr>
<td>1979</td>
<td>S (service level)</td>
</tr>
<tr>
<td>Cycles</td>
<td>R (Rytec level)</td>
</tr>
<tr>
<td>001</td>
<td>Access more parameters</td>
</tr>
<tr>
<td>999</td>
<td>Access all parameters</td>
</tr>
</tbody>
</table>

The Controller Controls

- **UP Arrow**
  - Press to increase a value or parameter number
  - Press and hold to increase values or parameter numbers quickly

- **RESET Button**
  - Press to toggle the flashing cursor between parameters and values
  - Press and hold to save changes to a value

- **DOWN Arrow**
  - Press to decrease a value or parameter number
  - Press and hold to decrease values or parameter numbers quickly

**Important**

**NOTE:** The System 4 display uses hexadecimal numbers to number parameters and for some values.

- The display uses the ten numeric characters (0-9), plus six letters (A-F), which represent the values from 11 through 16.
- In some cases it will be necessary to press the UP arrow sixteen times to change a value from 0000 to 0010.
Next: to start the CAN bus synchronization, assign the two Advanced3 light curtains to parameter L:201

NOTE: the values you will see at parameters L:201, L:401 and L:501 will be the IDs for the light curtains included in the kit, and will not match the values shown here.

Do This Result

1 X to show the first set of light curtains

L: SAI Slot2
201= 0932-9156?

If the current selection does NOT light the LEDs:
1 X to show the next set of light curtains

L: SAI Slot2
201= 0948-9142?

If the current selection DOES light the LEDs:
Re-check the light curtains.

2 Check the Advanced3 light curtains mounted in the door tracks of both side columns.
- If all four LEDs are flashing (transmitter: green and yellow, receiver: blue and red), the door track light curtains are synced correctly.
- If other light curtains light up, go to the next value.

3 If the current selection does NOT light the LEDs:
1 X to show the next set of light curtains

L: SAI Slot2
201= 0948-9142?

If the current selection DOES light the LEDs:
until the setting is saved

L: SAI Slot2
201= 0948-9142?

The controller moves to parameter L:401.

4 If the current selection does NOT light the LEDs:
1 X to show the next set of light curtains

L: SAI Slot4
401= 0932-9156?

If the current selection DOES light the LEDs:
until the setting is saved

L: SAI Slot4
401= 0932-9156?

The controller moves to parameter L:401.

5 If the current selection does NOT light the LEDs:
1 X to show the next set of light curtains

L: SAI Slot4
401= 0992-9187?

If the current selection DOES light the LEDs:
until the setting is saved

L: SAI Slot4
401= 0992-9187?

The controller moves to parameter L:501.

Next: assign the two inside SmartSurround™ light curtains to parameter L:401

On doors that are mounted to interior walls, the cover mounted SmartSurrounds™ are considered to be the inside light curtains and are assigned to parameter L:401.

On doors that are mounted to exterior walls, the jamb mounted SmartSurrounds™ are considered to be the inside light curtains and are assigned to parameter L:401.
Next: assign the two outside SmartSurround™ light curtains to parameter L:501

On doors that are mounted to interior walls, the jamb mounted SmartSurrounds™ are considered to be the outside light curtains and are assigned to parameter L:501.

On doors that are mounted to exterior walls, the cover mounted SmartSurrounds™ are considered to be the outside light curtains and are assigned to parameter L:501.

Do This Result

1 1X to show the first set of light curtains

L: SAI Slot5
501= 0932-9156?

If the current selection does NOT light the LEDs:

1X to show the next set of light curtains

L: SAI Slot5
501= 0923-9126?

If the current selection DOES light the LEDs:

1X to show the next set of light curtains

L: SAI Slot5
501= 0923-9126?

Check the SmartSurround™ outside light curtains on both side columns.

- If all LEDs are flashing, the cover mounted light curtains are synced correctly.
- If other light curtains light up, go to the next value.

The controller ends at parameter P:000.

P: Door Cycles S
9000# 0000 Cyc

Next: set limits

Do This Result

1 until the “Syncron.” screen displays

Hold Reset button if position OK

! Syncron. ! _0 Press Reset

2 1X to start sequence

To Open Pos. _0 Hold Reset

Snap the limit settings into position, and run the tests in What to test after powering up the door on the next page.

3 Interrupt the set limits sequence and run the tests in What to test after powering up the door on the next page.

Resume the sequence and set the open position.

Continue the sequence and close the door.

! Auto Calibrate! Press Open Butto

4 until “Open Limit Set” screen displays

Open Limit Set
_0

When quality check is complete, you see these screens:

LGx Qual. Check _0

! Syncron. ! _0 Press Close

5 1X to start auto-calibration

Search Edge -1330_Auto Close

The door panel stops when it reaches the bottom of the light curtain, then you see:

Door Is Opening
Acl1 = 4Sec

Door Is Closing
Acl1 = 4Sec

6 The bottom of the reversing edge should line up with the lintel (top of the door opening).

Spiral Door Cycles
[x] Cycles

[xxx] Cycles

_0 Press Reset! Syncron.!

until the “Syncron.” screen displays

_0 Hold Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.

_0 Press Reset! To Open Pos.

_0 Hold Reset! To Open Pos.
**What to test after powering up the door**

1. Does the door panel move in the right direction?
   - **Test:** The direction of the door should match the direction of the arrow on the controller.
   - **Yes:** no action is needed.
   - **No:** follow the steps in *How to reverse the rotation of the motor*.

2. Is the door panel level and plumb?
   - **Test:** laser the door along the seal between two door panel slats.
   - **Yes:** no action is needed.
   - **Panel is not level:** follow the steps in *How to adjust the secondary drive belt*.
   - **Panel is not plumb:** contact Rytec technical support at 800-628-1909.

3. Are the drive belt pulley assemblies level?
   - **Test:** make sure the secondary drive belts in both side columns are centered in the pulley assemblies after the door has been opened and closed several times.
   - **Yes:** no action is needed.
   - **No:** follow the steps in *How to level the baseplate pulley assembly*.

4. Is the manual brake release operating correctly?
   - **Test:** pull down the lever to 90° to manually release the brake, then push the lever back up to reset it.
   - **Release operating correctly:** when the lever is down, the door panel moves freely and the controller displays an F211 Emergency Stop error. When the handle is reset, the controller displays Door is Stopped and you can close the door by pressing the DOWN arrow. **No action is needed.**
   - **Release NOT operating correctly:** the F211 Emergency Stop error stays on when the lever is reset, and the door cannot be closed. Follow the steps in *How to adjust the proximity sensor*.

5. Is the door operating correctly?
   - **Test:** listen for grinding, whining or excessive motor noise. Watch for changes in speed or excessive movement of the motor or drum
   - **Yes:** no action is needed.
   - **No:** contact Rytec technical support at 800-628-1909.

**How to reverse the rotation of the motor**

*First: set the controller to Parameter mode and access Service level parameters*

1. Until the parameter screen displays
   - **Do This:** Set the value to 10 (Service level password).
   - **Result:** You are in Parameter mode. Go to parameter P:999.

2. Until question mark changes to checkmark (value saved)
   - **Do This:** Set the value to 10 (Service level password).
   - **Result:** The Service level password is saved.

3. You can now change the value of parameter P:999.
   - **Do This:** Change the 0 to 1, or change the 1 to 0.
   - **Result:** The new value is saved.

4. Reset the limits for the door.
   - **Do This:** Until the “To Open Pos.” screen displays
   - **Result:** Reset the limits for the door.
How to adjust the secondary drive belt

**WARNING**
Do not perform this procedure until the power disconnect is in the OFF position and a lockout/tagout is complete.
Contact with high-voltage wires, or the door being activated unexpectedly, can cause death or serious injury.

1. **IMPORTANT**
Always adjust the belt to lower the side of the door panel that is higher.

2. **Loosen** the top front nut on the baseplate pulley assembly until there is noticeable slack in the secondary drive belt.
   - You will need to loosen the screws and move the CAN bracket out of the way to access the pulley assembly.
   - It should not be necessary to remove the pulley assembly from the mounting bolt.

3. **Laser level**
In the head assembly, “jump” the secondary drive belt one notch in the pulley.
Adjust the belt one tooth at a time, then recheck level.

4. Level the door panel again.
If the door panel is not level, repeat these steps and retest.
If the door panel is level, reset the tension on the belt.

5. **To reset the tension** on the belt:
   1. **Tighten** the top front nut to increase the tension.
   2. **Press** the front and rear legs of the belt together to test tension.
   3. **Adjust** the height of the top nut as needed to reach the correct tension.

6. **Reinstall** the CAN bracket.

7. Any time a CAN bus cable is disconnected while the power is on, you MUST do a soft reboot of the controller to re-sync the CAN bus system when all cables have been reconnected.
   - Press and hold all three buttons until the display goes blank.
   - Release the buttons. You see Self-Check or the system software versions number.
How to adjust the proximity sensor

What's the problem? The controller tracks the position of the manual break release through a magnetic sensor located in the motor. In some installation environments, the sensor needs to be adjusted from the factory preset to correctly track the brake release.

1. At the motor, remove the brake release lever. DO NOT remove the cable. The play in the spring allows it to turn with the release lever until it is free of the motor.

2. Remove the four screws and the bottom cover of the motor.

3. Check the distance between the sensor and the brake release arm (1). It should be .03"/.76mm, which is the thickness of a credit card. To adjust the sensor, first loosen the outer nut (2), then tighten the inner nut (3) to secure it in place.

4. Test the manual brake release again. If the controller displays the F211 error on reset, repeat these steps and retest. If the controller displays “Door Held Open”, the issue is resolved. Reinstall the motor cover and the brake release lever.
How to level the baseplate pulley assembly

1. Loosen the screws and move the CAN bracket out of the way to access the pulley assembly.

2. Loosen the top nut of the bolt on the side opposite to the side the belt favors. Lower the bolt until it touches the baseplate. Turn the bolt one more half-turn to raise that side of the pulley assembly, then test the door.

3. Manually raise and lower the door three (3) times.

4. If the belt is not centered in the pulley assembly: repeat these steps and retest.
   - If the belt is centered: raise the lower nut to lock the assembly in place. Reinstall the CAN bracket when you are done.

5. Any time a CAN bus cable is disconnected while the power is on, you MUST do a soft reboot of the controller to re-sync the CAN bus system when all cables have been reconnected.
   - Press and hold all three buttons until the display goes blank.
   - Release the buttons. You see Self-Check or the system software versions number.

How to manually reset the close limit (optional)

First: set the controller to Parameter mode and access Service level parameters

- Do This: until the parameter screen displays

1. Click to set value to hexadecimal 10
   - Do This: until the parameter screen displays
   - Do This: Set the value to 10 (Service level password).

2. Click to reach parameter P:999
   - Do This: until the parameter screen displays
   - Do This: The Service level password is saved.

3. Click to move cursor to the right (edit value)
   - Do This: until the parameter screen displays
   - Do This: You can now change the value of parameter P:999.

4. Click to move cursor to left (parameters)
   - Do This: until the parameter screen displays
   - Do This: You can now go to parameter 275.

Next: navigate to parameter P:275 (parameter P:221 for doors with photo eyes) and change the value

- Do This: until parameter displays
- Do This: until new value displays

1. Click to set value to hexadecimal 10
   - Do This: until parameter displays
   - Do This: The default value is -12 (default at.

2. Click to move cursor to the right (edit value)
   - Do This: until parameter displays
   - Do This: You can now change the value.

3. Click to move cursor to left (parameters)
   - Do This: until parameter displays
   - Do This: The new value is saved.

4. Click to set value to hexadecimal 10
   - Do This: until parameter displays
   - Do This: Do not change the value by more than 10 increments. Then test the door.

5. Click to move cursor to left (parameters)
   - Do This: until parameter displays
   - Do This: until door returns to run mode

IMPORTANT: Do not change the value by more than 10 increments. Then test the door.
How to finish testing the door and the safety features

Navigate to parameter P:980 and set the value to 4 so the door will cycle continuously

1. Watch the door as it cycles.
   - Make sure the door panel rises to the fully open position, remains in place for the standard time, then closes to the fully closed position.
   - Make sure the fully open and fully closed positions remain at the set limits.
   - Make sure the reversing edge is level when the door is fully closed.
   - Let the ACL timer hold the door open through each cycle. Shortening the timer while the door is cycling can cause the motor to overheat.

2. While the door cycles, look and listen for:
   - Unusual noises such as grinding, whining or excessive motor noise
   - Excess movement by the motor, drive or drum. Unexpected delay in activation or unusually long time period before automatically closing.

3. Make sure the blue LED (receiver) and green LED (transmitter) on the Advanced light curtains are flashing once every two second, and that the red LED (receiver) and yellow LED (transmitter) are OFF.

4. Make sure the SmartSurround™ operates correctly as the door opens and closes:
   - An upward cascade of red lights while the door opens.
   - A sequence of blinking yellow lights matching the delay to close timer before the door starts to close.
   - A downward cascade of red lights while the door closes.

5. Test the SmartSurround™ system:
   - Make sure the light curtains flash rapidly whenever either of the planes are broken.
   - If one plane is broken but the other is not, the light curtains should reverse/hold the door, then the door should count down and descend at creep speed.
   - If all planes are broken, the light curtains should reverse/hold the door, then the door should count down and descend at normal speed.

6. LEDs on the CAN repeaters and distributor indicate if the system is working correctly
   - LEDs next to the ports (blue) should be ON steadily (no flashing).
   - The CAN status LED (yellow) should be flashing one to four times per second.
   - The power status LED (green) should be ON steadily (no flashing).
   - Contact technical support if you do not see this.

7. If the door has an active reversing edge (optional), test the reversing edge by placing your arm in the path of the door while it is closing.
   - Make sure you place your arm above the light curtains.
   - The door panel should stop, then reverse direction and rise to the fully open position.

8. Set the controller to parameter mode.
   - Set Parameter 980 back to 0 to take the door out of continuous cycle.
   - Return to run mode.

9. Activate the door using each activating system at least three times per system.
How to complete the installation

It is recommended that you **do not use power tools** for these steps. Overtorquing screws can damage the riveted nuts that secure them.

1. Reinstall both side column covers.

2. Reinstall both console covers.

3. If the door has a preinstalled front hood cover, reinstall the front panels. **Locate the display covers and hardware in the small parts box and install.**

   **Notes:**
   - Number of panels varies based on size of door.
   - -S and -S/R doors have both top and bottom front spreaders.

4. Reinstall the belt guard cover.

   **Note:** on $S$ and -$S/R$ doors, all hardware requires a T40 torx screwdriver.

5. If necessary, use the spray paint to correct blemishes in the door finish.

6. Caulk between the door opening and the door.

7. Full vision doors: remove the protective plastic film from both sides of each door slat. **CAUTION**

   Film can release a static charge when removed.

---

**SMALL PARTS**
- Reinstall both side column covers.
- Reinstall both console covers.
- Keep reuse number of screws varies based on height of door.
- Install an additional screw from the small parts box into the screw hole in the corner bracket.
- If the door has a preinstalled front hood cover, reinstall the front spacer brackets in front of the console covers.
- If the door has a preinstalled flat top hood cover, reinstall the top panels.
- Locate the display covers and hardware in the small parts box and install.
- Reinstall the belt guard cover.
- Display covers
- Keep reuse number of torx screws varies based on size of door.
- Full vision doors: remove the protective plastic film from both sides of each door slat.

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**CAUTION**

Film can release a static charge when removed.