

# How to retrofit a Rytec Spiral® Prewire door with the SmartSurround™ light curtains, Advanced<sup>3</sup> light curtains and CAN bus cabling

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Status: Active

**IMPORTANT: Read this entire bulletin before proceeding.**

Questions? Call Rytec Customer Support at 1-800-628-1909.

## The meaning of signal words



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:

	<b>WARNING</b>
	Warning indicates a hazardous situation that, if not avoided, could result in death or serious injury.

## Safety icons used in this bulletin



Shock hazard



Fall hazard



Crush hazard



Cut hazard

## Other icons used in this bulletin



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



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

## Printing this manual

If printing this manual, ensure it's printed on 11' x 17' paper at **Actual Size** and not **Shrink to Fit** so that the included drilling templates are accurate.

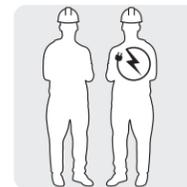
Get this manual on your device:



## Retrofit safety

- Do not service 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 service the door.
  - The service site comprises the physical area required to safely unpackage and stage components and service the door.
  - Make sure all personnel at the site have been informed of the date, time and location of the service.
  - Make sure there is no pedestrian or vehicular traffic within the service site for the duration of the service.
  - Make sure you have and use all required Personal Protective Equipment.
- Make sure you are aware of the location of all power lines, piping and HVAC systems within the installation site.

## Requirements – Staffing



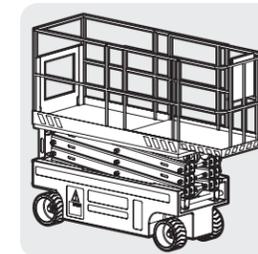
- Two service personnel are recommended.
- A licensed electrician is recommended for making all electrical connections

## Requirements – Lifts

	<b>WARNING</b>
	Follow all safety instructions on all lifts and ladders used for this installation.

Scissor lift that meets the following specifications:

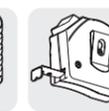
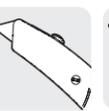
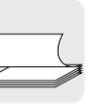
- Can hold both service personnel.
- Minimum height ability: door height



Alternatively, two ladders of sufficient height to safely access the door head assembly



## Tools and supplies you will need

<p><b>Tools</b></p>  <p>Angle grinder or jig saw</p>  <p>Power drill with these drill bits</p> <p>9.5mm 13mm 5/32" 3/16" 3/8" 7/16"</p>  <p>File</p>  <p>(2) Saw horses</p>  <p>(2) C-clamps</p>  <p>Laser level</p>  <p>Tape measure</p>  <p>Cement drill</p>  <p>(2) Vise grips</p>	 <p>Cutting pliers</p>  <p>Chisel</p>  <p>Utility knife</p>  <p>Wire stripper</p>  <p>Precision screwdriver</p>  <p>Fish tape</p>  <p>#2 Phillips screwdriver</p>  <p>Flat head screwdriver</p>  <p>T40 Torx screwdriver</p>  <p>Socket or open wrench</p>  <p>Hex wrench</p>
<p><b>Supplies</b></p>  <p>Cabling</p>  <p>Cable ties and anchors</p>  <p>Electrical tape and wire nuts</p>  <p>Alcohol wipes</p>	 <p>8mm 9.5mm 13mm 5/32" 5/16" 3/8"</p>

# SmartSurround™ light curtains and CAN bus cabling: what you are installing during this retrofit

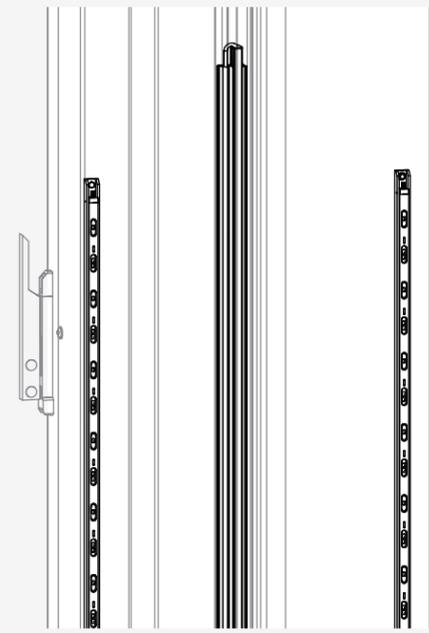
## SmartSurround™ light curtains

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

- When the retrofit is complete, the door will have three light curtain detection planes.
- You **remove** the current photo eyes or light curtains and **replace** them with the Advanced<sup>3</sup> light curtains, which you install into the door track.
- In addition, you install **two sets of SmartSurround™ light curtains**. One set is mounted on the side column covers (cover mounted), the other is installed on the walls of the door opening (jamb mounted).
- The SmartSurround™ light curtains **also replace the Pathwatch LED strips**, which you remove. The SmartSurround™ LEDs are larger and brighter than the Pathwatch, and can display multiple colors and patterns.

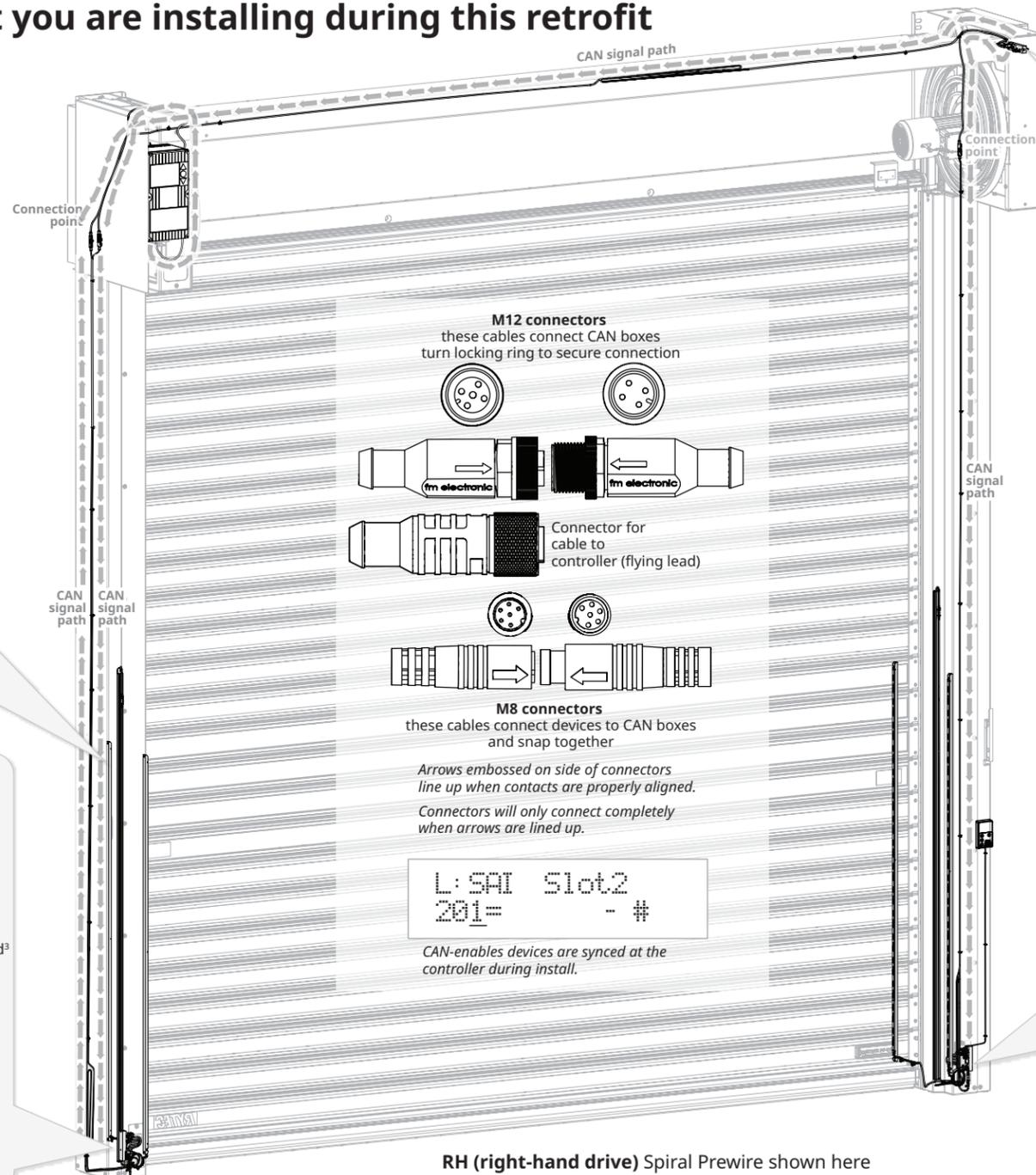
## SmartSurround™ light curtains

SmartSurround™ light curtains mount on the side column covers (cover mounted) and the walls of the door opening (jamb mounted). The standard light curtain, now called the Advanced<sup>3</sup>, is still located inside the door track.

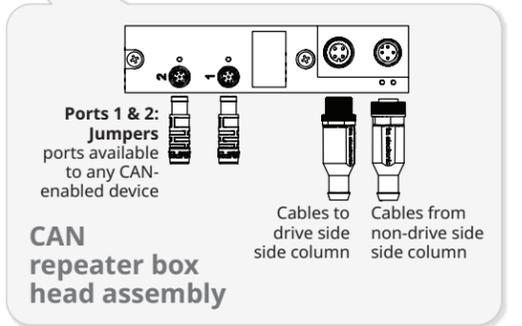


## CAN bus cabling

- CAN bus cabling is a **single chain (series) of cables** that replaces the multiple cables needed for the Pathwatch LED strips and light curtains or photo eyes.
- 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.
- It also replaces the X10 junction box in the head assembly.
- CAN-enabled Rytec devices **can plug into any available port in any CAN box**. During this retrofit, you will plug all six light curtains into the boxes you will install onto the baseplates of the side columns.
- 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.

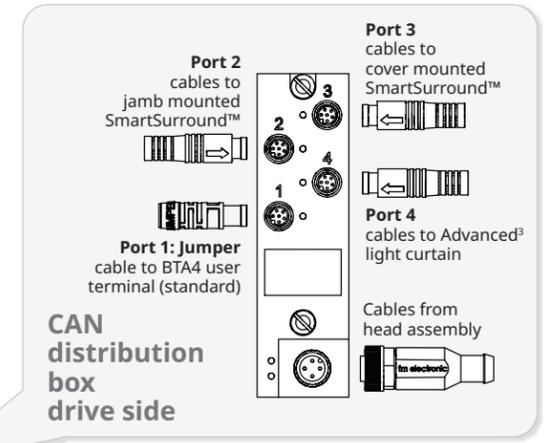
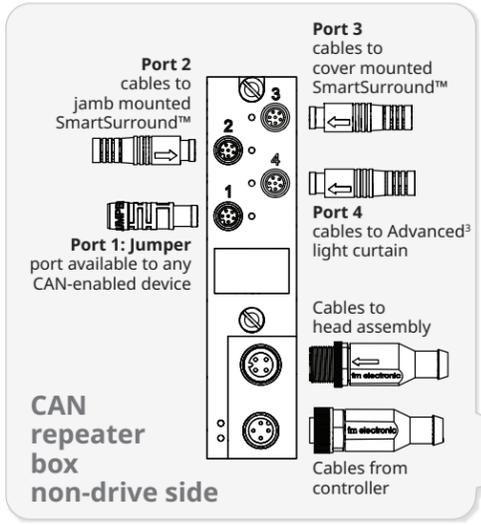


RH (right-hand drive) Spiral Prewire shown here



## IMPORTANT

On prewired Spirals, the CAN distribution box is on the drive side baseplate, and the CAN repeater box is on the non-drive side baseplate. This is the reverse of their locations in all other Spirals.



## Reversing edge

The SmartSurround™ system, in combination with the Advanced<sup>3</sup> 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. The reversing edge system is disabled as part of this retrofit.

The reversing edge system can be reenabled if a full height sensing system is required. See Page 38.

# Before you begin – three (3) steps to make sure the door and kit are ready for the retrofit

**1: Open the kit and stage the parts. Match components to hardware to location in the door where they will be installed. NOTE: drive side may be LH (left) or RH (right); RH components shown here.**

**Controller - in non-drive side console of head assembly**  
*(may be left side or right side of door)*

**CAN Comm Board**

**USB drive**  
Holds updated system software

**CAN 120Ω resistor**  
Used for troubleshooting

**Heat shrink tubing**  
Used when wiring comm board

**Cable ties, anchors and cable clips**

**Non-drive side light curtains**  
*(may be left side or right side of door)*

**FEIG TST LGDR-A190C LIGHT CURTAIN - RECEIVER**  
40 Channels | 144mm | PLS Cat. 2 | 24VDC  
Large Signal 4 | 0.5/2.5A (max) | 50mA | VOM 2021

Mount Advanced<sup>3</sup> receiver on non-drive side  
Mount SmartSurround™ transmitter on non-drive side

**RYTEC TST LGCAR-R165C SMARTSURROUND™ TRANSMITTER**  
16 - 18 Channels | 16 - Warning Light Sema | Range 112 m | 24VDC | IP 67 | 325 mA | VOM 2021

Mount SmartSurround™ transmitter on non-drive side

**Advanced<sup>3</sup> light curtain**  
Mounts inside door track  
Mounting hardware: track clip/wire chase

**SmartSurround™ light curtain**  
Mounts to cover (cover mounted); cable is labeled  
Mounting hardware: (2) bolts and nuts

**Drive side light curtains**  
*(may be left side or right side of door)*

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Mount Advanced<sup>3</sup> transmitter on drive side  
Mount SmartSurround™ receivers on drive side

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Mount SmartSurround™ receiver on drive side

**Advanced<sup>3</sup> light curtain**  
Mounts inside door track  
Mounting hardware: track clip/wire chase

**SmartSurround™ light curtain**  
Mounts to cover (cover mounted); cable is labeled  
Mounting hardware: (2) bolts and nuts

**Drive side console of head assembly**  
*(may be left side or right side of door)*

**CAN repeater box**  
Mounts inside console  
Mounting hardware: (3) bolts and nuts

**(2) CAN port jumpers**

**(2) M12 CAN cables**  
PN: 1210855-0X  
one long, one short

**Non-drive side side column and console**  
*(may be left side or right side of door)*

**(2) M8 CAN cables**  
PN: 1210800-0B (1 foot) and 1210800-0E (1 foot)

**(1) M8 CAN cable with label**  
PN: 1210879-0 (1 foot)

**(2) M12 CAN cables**  
PN: 1210855-0

**(1) M12 CAN flying lead**  
Cable to controller  
PN: 1210856-0

**Cable raceway**  
Mounts to rear of side column  
Mounting hardware: (3 pc) double-sided tape, installed at Rytec

**CAN port jumper**

**(2) P-clips**  
Secure SmartSurround™ cable  
Mounting hardware: (2) cement screws and anchors or self-tapping screws

**(2) M8 CAN cables**  
PN: 1210800-0B (1 foot) and 1210800-0E (9 foot)

**(1) M8 CAN cable with label**  
PN: 1210879-0 (1 foot)

**(1) M12 CAN cable**  
PN: 1210855-0

**Cable raceway**  
Mounts to rear of side column  
Mounting hardware: (3 pc) double-sided tape, installed at Rytec

**CAN port jumper**

**Drive side side column baseplate**  
*(may be left side or right side of door)*

**(2) M8 CAN cables**  
PN: 1210800-0B (1 foot) and 1210800-0E (9 foot)

**(1) M8 CAN cable with label**  
PN: 1210879-0 (1 foot)

**(1) M12 CAN cable**  
PN: 1210855-0

**Cable raceway**  
Mounts to rear of side column  
Mounting hardware: (3 pc) double-sided tape, installed at Rytec

**CAN port jumper**

**Access cover**  
Mounts to side column cover  
Mounting hardware: (2) self-tapping screws

**Access cover**  
Mounts to side column cover  
Mounting hardware: (2) self-tapping screws

**BTA4 user terminal (optional)**

**MS4 user terminal (optional)**

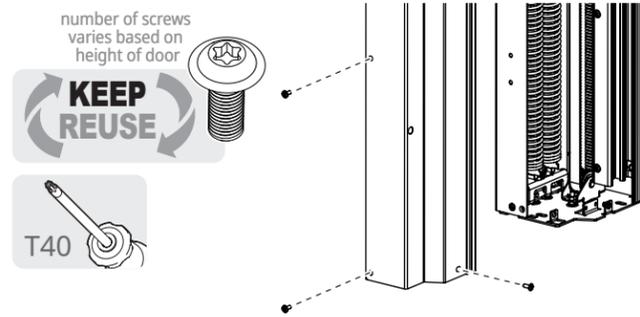
**(2) M8 CAN cables**  
PN: 1210800-0B short for side column BTA4 mounting, long for all other mounting

**Access cover**  
Mounts to baseplate  
Mounting hardware: (2) screws

**CAN distribution box and bracket**  
Mounts to baseplate  
Mounting hardware: (2) screws

**2: Secure the door in the open position, then switch the controller to parameter mode and record the door profile and (wireless doors only) mobile address**

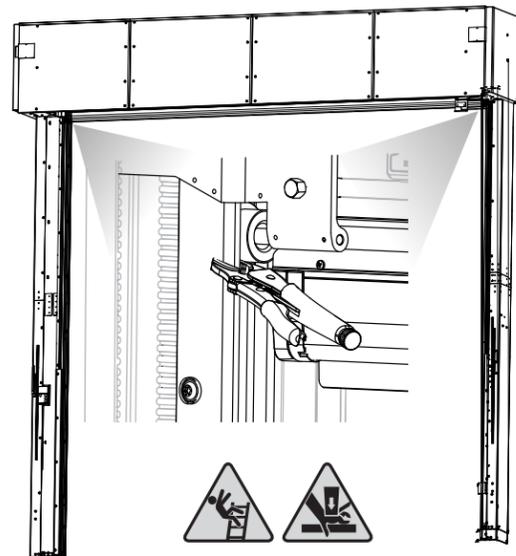
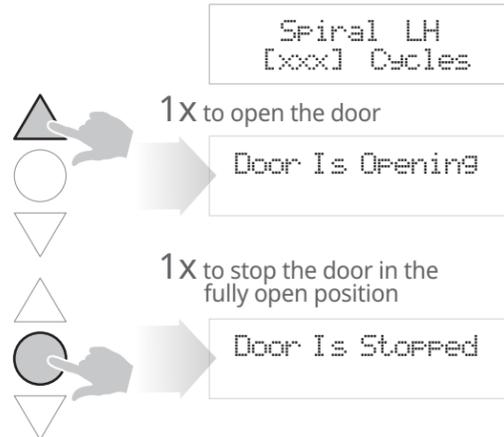
**1** Loosen the bolts and remove the side column covers on both side columns.



Do This Result

**2** Set the door in the fully open position. **IMPORTANT** Place vice grips in the door track below the bottom roller on both sides of the door to secure it in place.

You start in run mode



**Put the door in parameter mode and enter the passcode for Service level access**

Do This Result

**1** until the parameter screen displays  
P: Password 0  
999= 0001?#  
You are in Parameter mode.

**2** 2X to reach parameter P:999  
P: Password 0  
999= 0000 #  
The Password parameter P:999 screen displays.

**3** 1X to move cursor to the right (edit value)  
P: Password 0  
999= 0000?#  
You can now change the value of parameter P:999.

**4** 16X to set value to hexadecimal 10  
P: Password 0  
999= 0010?#  
Set the value to 10 (Service level password).

**5** until question mark changes to checkmark (value saved)  
P: Password S  
999= 0010?#  
The Service level password is saved.

**6** 1X to move cursor to left (parameters)  
P: Password S  
999= 0010 #  
You can now go to a different parameter.

**Then go to parameter P:991 and (wireless doors only) P:F07 and record the values you find there.**

**7** until you reach parameter P:991  
P: Defaults S  
991= 44?#  
This is the **profile (door model)** of the door

**8** Write down the value you find here. You will re-enter it later.

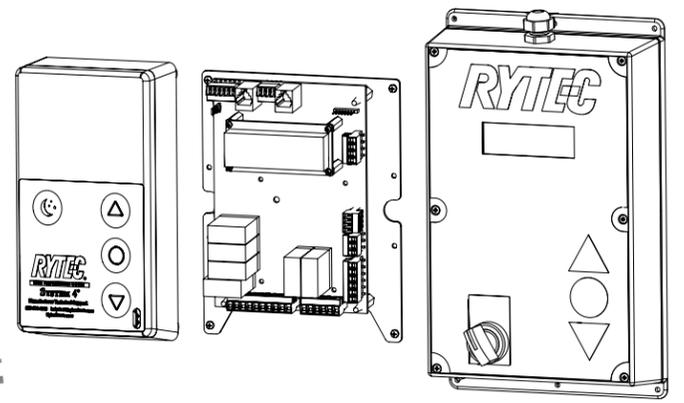
**9** until you reach parameter P:F07  
P: F5x-Address S  
F07= 04A72 #  
This is the **mobile address** for the mobile unit. It is a **hexadecimal number**, so it may contain alpha and numeric characters.

**10** Write down the value you find here. You will re-enter it later.

**3: Check if the door has an MS4 or BTA4 user terminal, whether it will continue in use or be replaced, and prep it to be retrofit**

**1** Check the kit to see if an optional BTA4 or MS4 user terminal is included in this retrofit. **There may also be** an updated circuit board for an existing MS4 user terminal. There are **additional, optional steps** to install or retrofit the BTA4 and MS4 terminal when setting up the side column covers, as well as additional steps when removing old cabling and installing the CAN bus cabling.

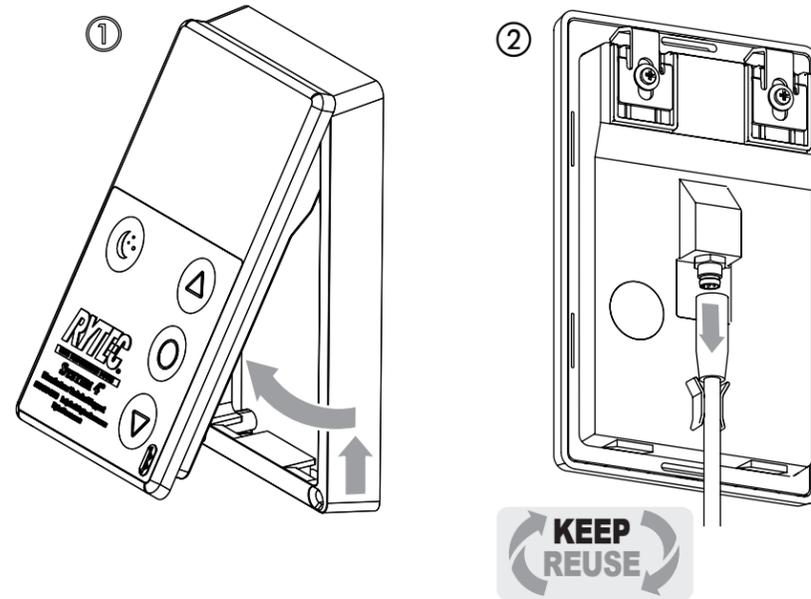
**IMPORTANT**



**For a BTA4 user terminal:**  
**push up, then swing out** the user terminal to release it from the frame ①.

**Unplug** the quick connect cable from the connector on the rear of the unit ②.

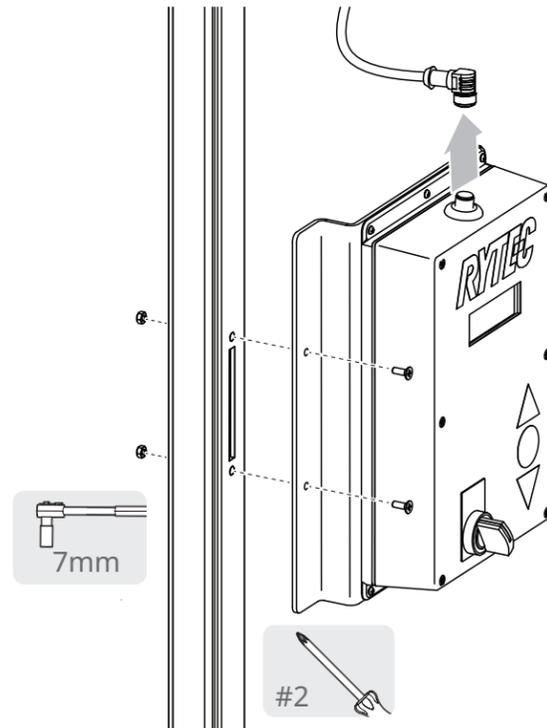
- The user terminal will be connected to the CAN bus later in this procedure.
- The cable will be removed later in this procedure.



**For an MS4 user terminal that is being replaced** by a BTA4, remove it.

**The cable** will be removed later at the controller.

**Get the BTA4 user terminal** and hardware from the small parts box.

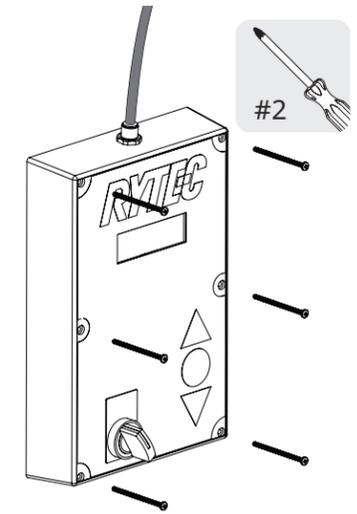


**For an MS4 user terminal that will continue in use:**

**Loosen** the six screws and remove the front cover.

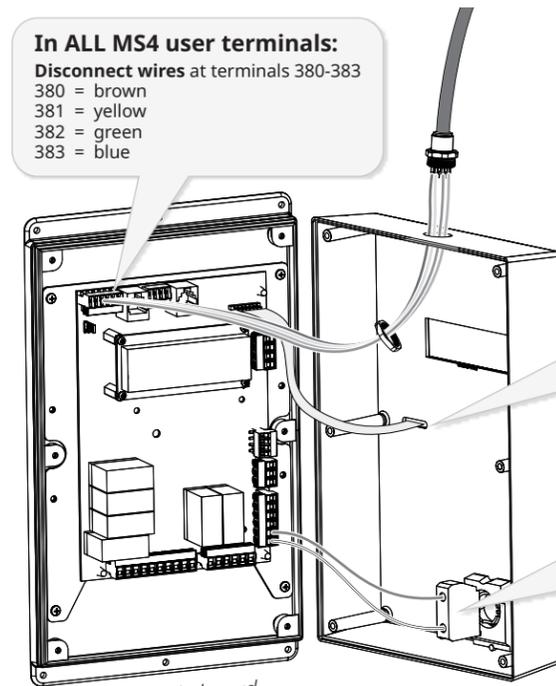
**Check two things:** whether the circuit board is input/output capable (terminal blocks on all sides rather than a single block in the upper left corner), and whether there is an ON/OFF switch.

- The user terminal will be connected to the CAN bus later in this procedure.
- The cable and connector will be removed later in this procedure.



**In ALL MS4 user terminals:**

**Disconnect wires** at terminals 380-383  
 380 = brown  
 381 = yellow  
 382 = green  
 383 = blue



*I/O capable board (multiple terminal blocks)*

**In ALL MS4 user terminals:**  
 Leave the ribbon cable from the user interface to the circuit board in place

**In MS4 user terminals with terminal blocks (input/output capable)**  
 (if present): leave wires from ON/OFF switch to terminals 330-331 in place



23/32"



Precision screwdriver



Wire stripper

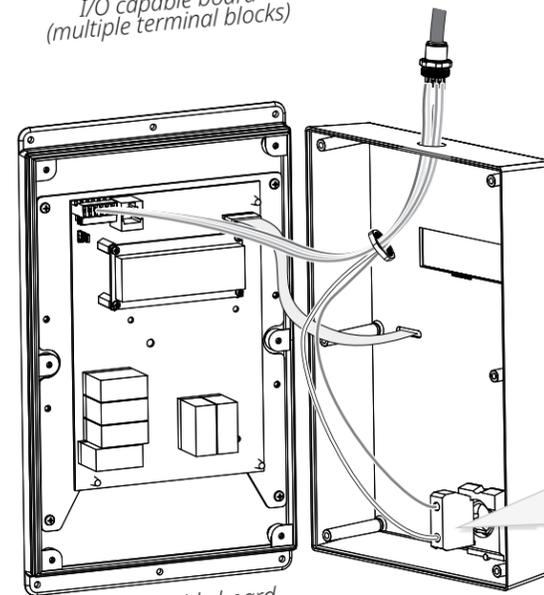
**IMPORTANT**

**In MS4 user terminals with a single terminal block (NOT input/output capable)**

If there is an ON/OFF switch, it connects directly to the red/white wires from the cable.

**The switch must be connected** to the circuit board or the switch will not function after the CAN bus is installed.

- ① **Check the kit** for a replacement circuit board (includes terminal blocks for input/output).
- ② **Disconnect** the ribbon cable from circuit board.
- ③ **Pop out** the old circuit board and snap in the replacement board.
- ④ **Reconnect** the ribbon cable.
- ⑤ **Cut** red and white wires near connector and **connect** ON/OFF switch to terminals 330 and 331 on the new board. **Either wire may be used in either terminal.**
- ⑥ **CALL RYTEC TECHNICAL SUPPORT** at 800-628-1909 if you do not find a replacement circuit board in the kit or if you have any questions.



*Non-I/O capable board (single terminal block)*

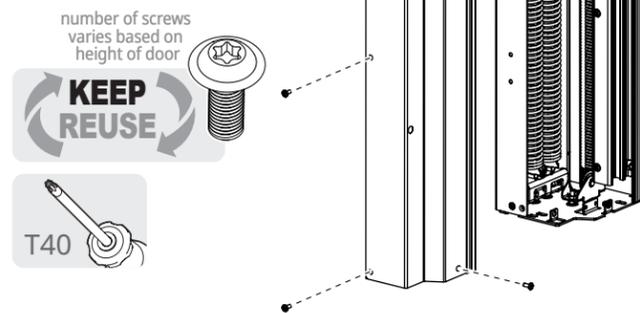
# How to install the SmartSurround™ light curtains



If the side column is blocked so that the access cover would not be accessible, such as by a bollard positioned too close to the door, consult with the owner to see whether or not they want the access cover installed.

**1** If side covers were put back in place after previous steps, **loosen** the bolts and **remove** the side column covers on both side columns.

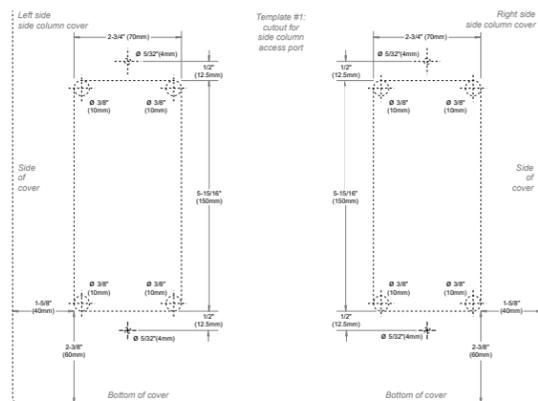
The **left side side column cover** is shown for these steps.



**2** **Remove** the cutting templates (#1) from the next page of this manual.

**Separate** the templates into left and right sides.

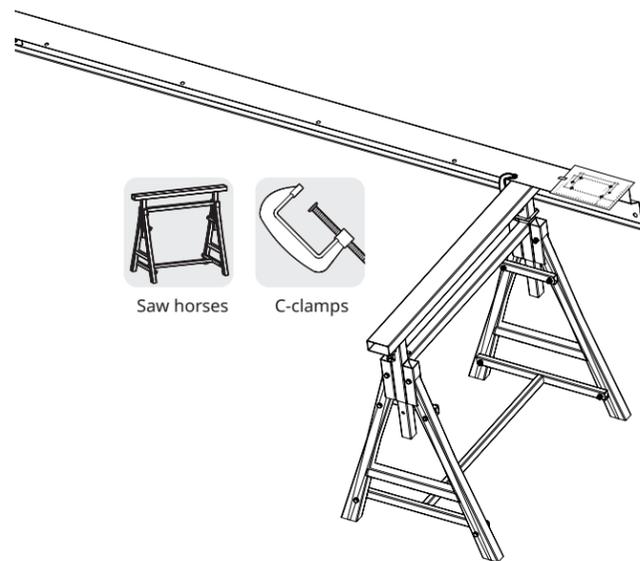
**Tape** the templates to the side columns.



**3** **Clamp** the cover to saw horses.

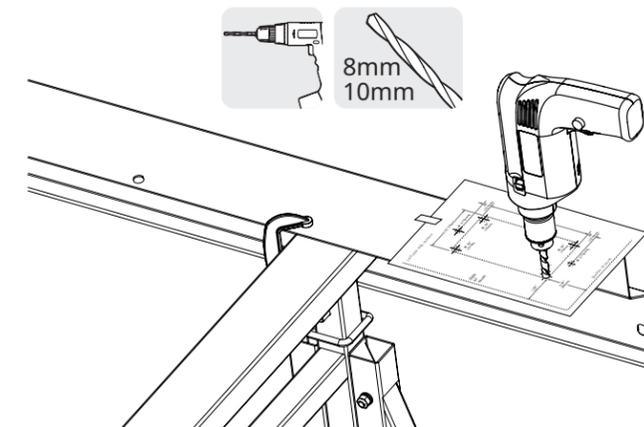
**IMPORTANT**

**Make sure** the c-clamps do not scratch the surface of the cover.



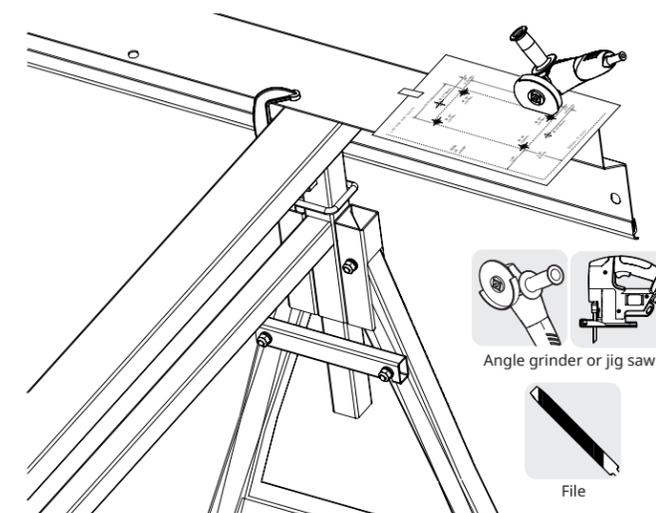
**4** **Drill out** the four corners for the side column access port.

**Drill out** the two holes for the tek screws.

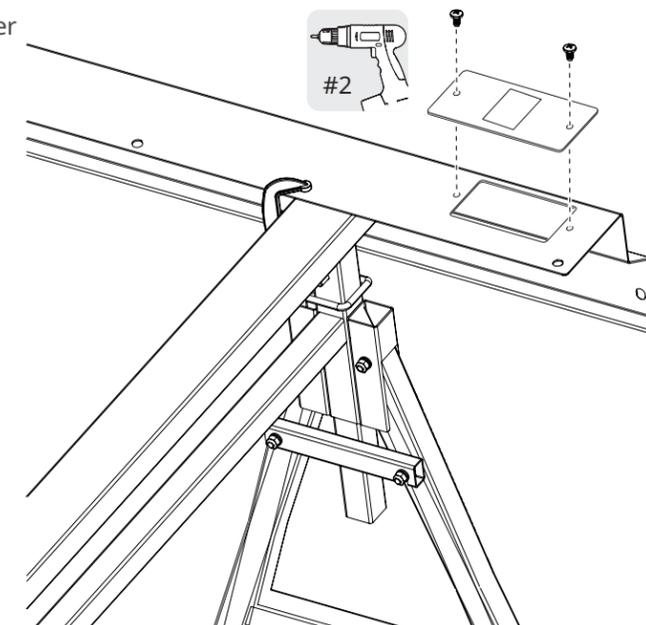
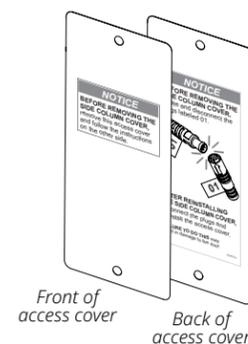


**5** **Cut** between the corners with an angle grinder or jigsaw.

**File** all edges smooth when you are done



**6** **Secure** the access cover in place with the two thread cutting screws from the kit.

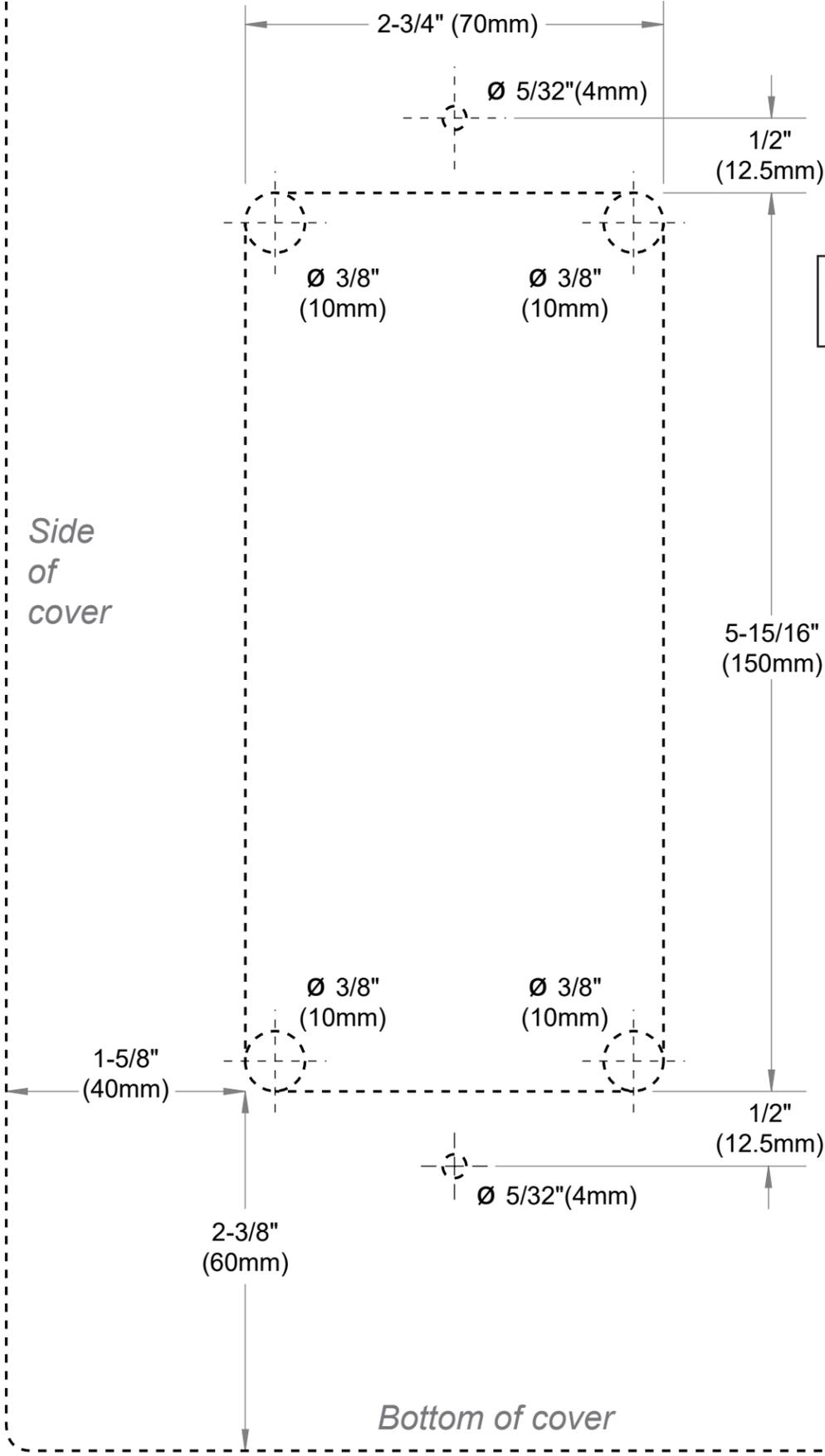


**FROM KIT**

**NOTICE**  
BEFORE REMOVING THE SIDE COLUMN COVER, remove this access cover and follow the instructions on the other side.

**2**  
Hardware shown actual size

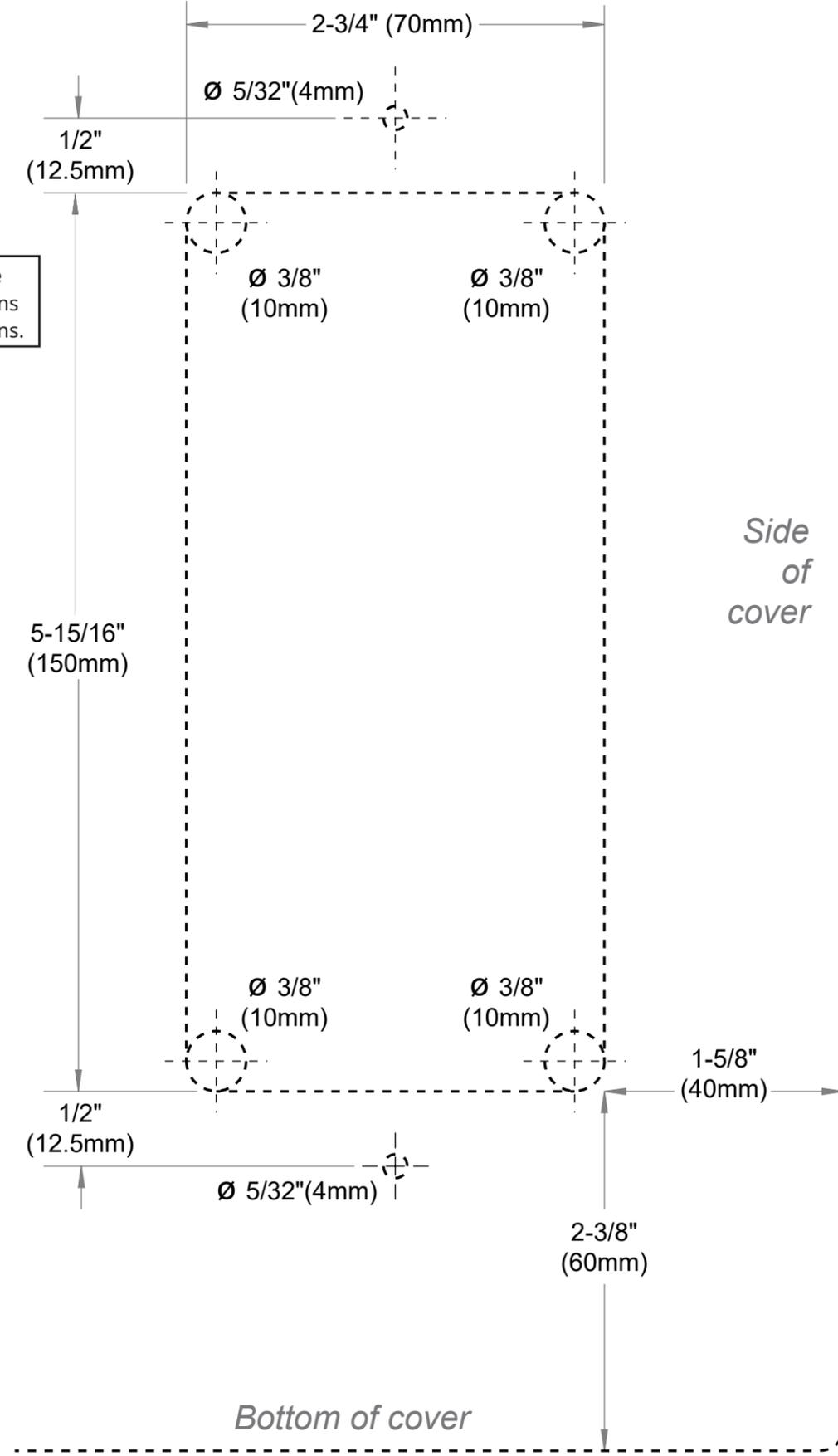
Left side  
side column cover



Template #1:  
cutout for  
side column  
access port  
This template is  
used in  
Step 2 on page 6

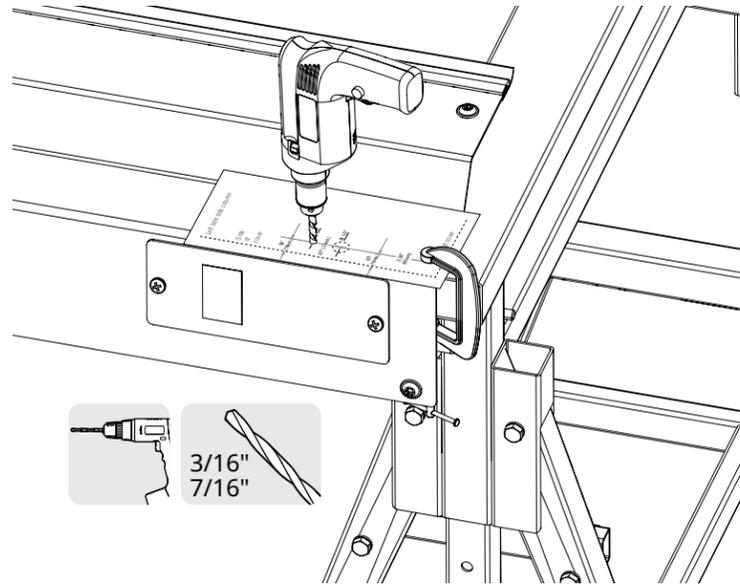
**IMPORTANT** Before using template  
verify printed dimensions  
match shown dimensions.

Right side  
side column cover



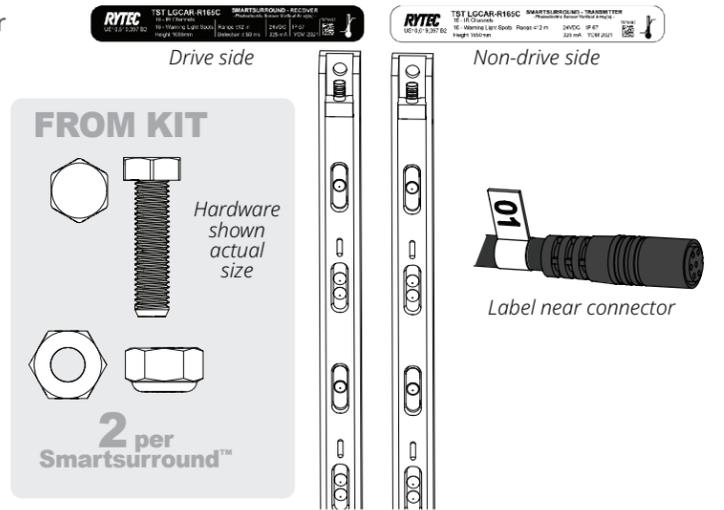
Back of Template #1  
Intentionally left blank

- 7 Flip and reclamp** the side column.  
**Remove** the drilling templates (#2) from this page.  
**Separate** into drive and non-drive side and **tape in place** on the side columns.  
**Drill out** the holes for the bottom bolt and the SmartSurround™ cable.

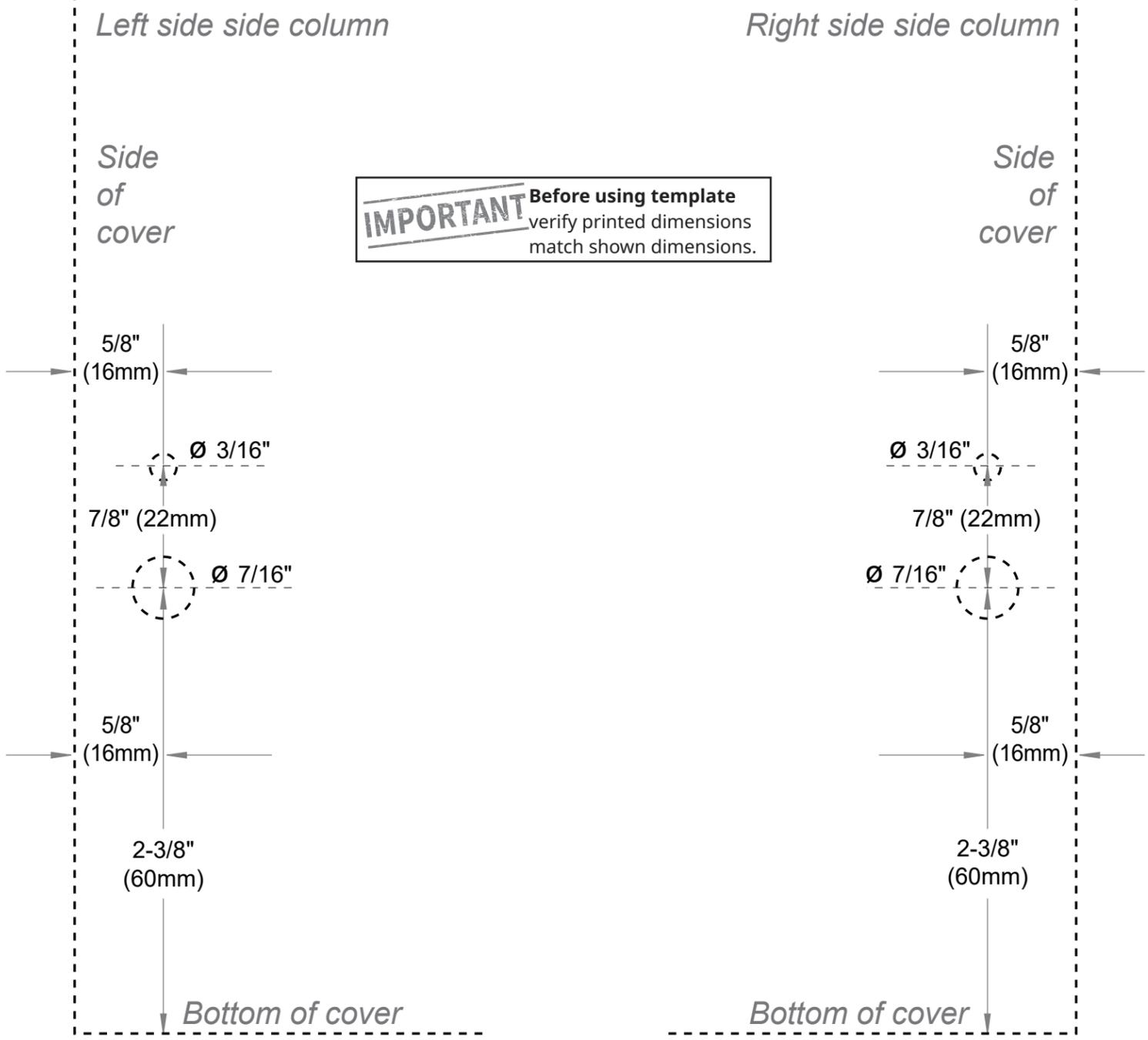
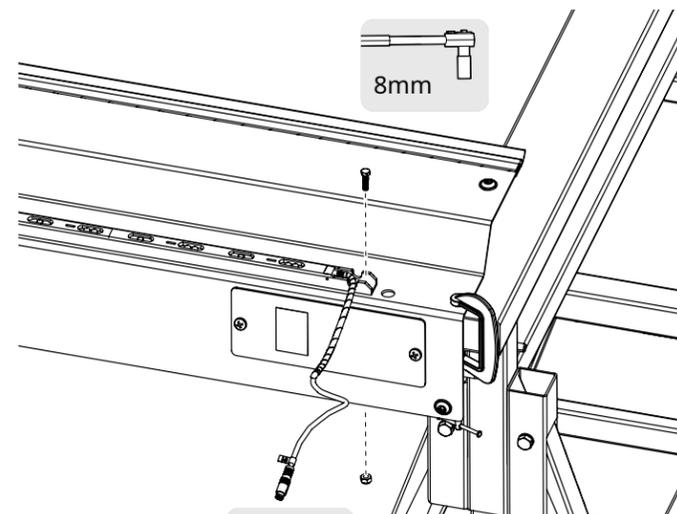


Template #2:  
 holes for  
 side column  
 cover  
 SmartSurround™  
 This template is  
 used in  
 Step 7 on this page

- 8 Get** the labeled SmartSurround™ transmitter and receiver, as well as the mounting hardware, from the kit.  
**Check the labels** and make sure the receiver goes on the drive side cover and the transmitter goes on the non-drive side cover.



- 9 Install** the bolt and nut into the bottom hole in the SmartSurround™ mounting channel.  
**Leave them loose** until you have installed the top bolt/nut combination.

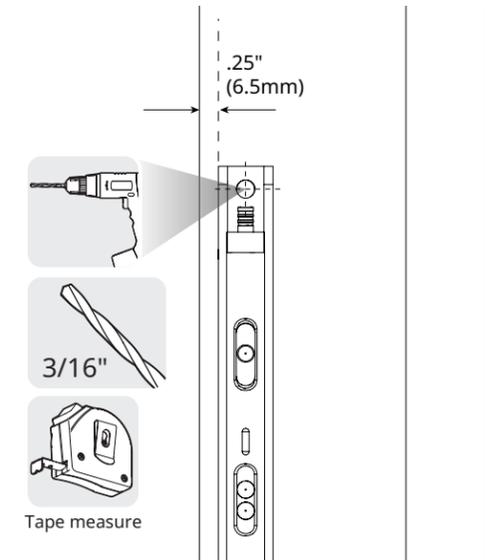


Back of Template #2  
Intentionally left blank

**10** **Line up** the SmartSurround™ mounting channel with the edge of the side column.

- There should be .25" distance from the edge the full length of the light curtain.

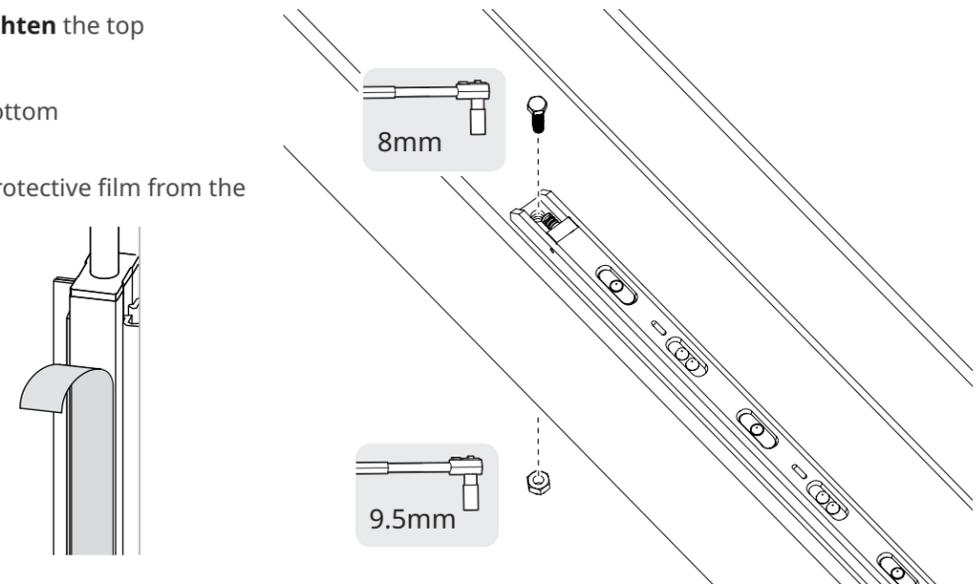
**Drill out** the top bolt hole through the top hole in the channel.



**11** **Install and tighten** the top bolt and nut.

**Tighten** the bottom bolt and nut.

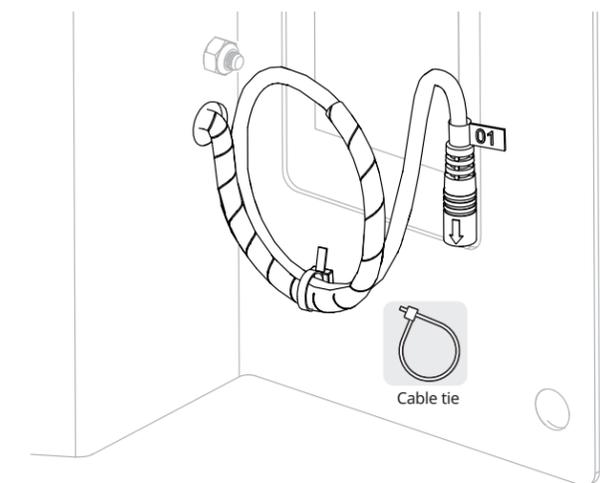
**Remove** the protective film from the light curtains once they are installed.



**12** **Thread** the cable through the hole in the side column cover.

**INSIDER'S TIP**

**Loop the cable** and cable tie the loop to minimize loose cabling in the side column.



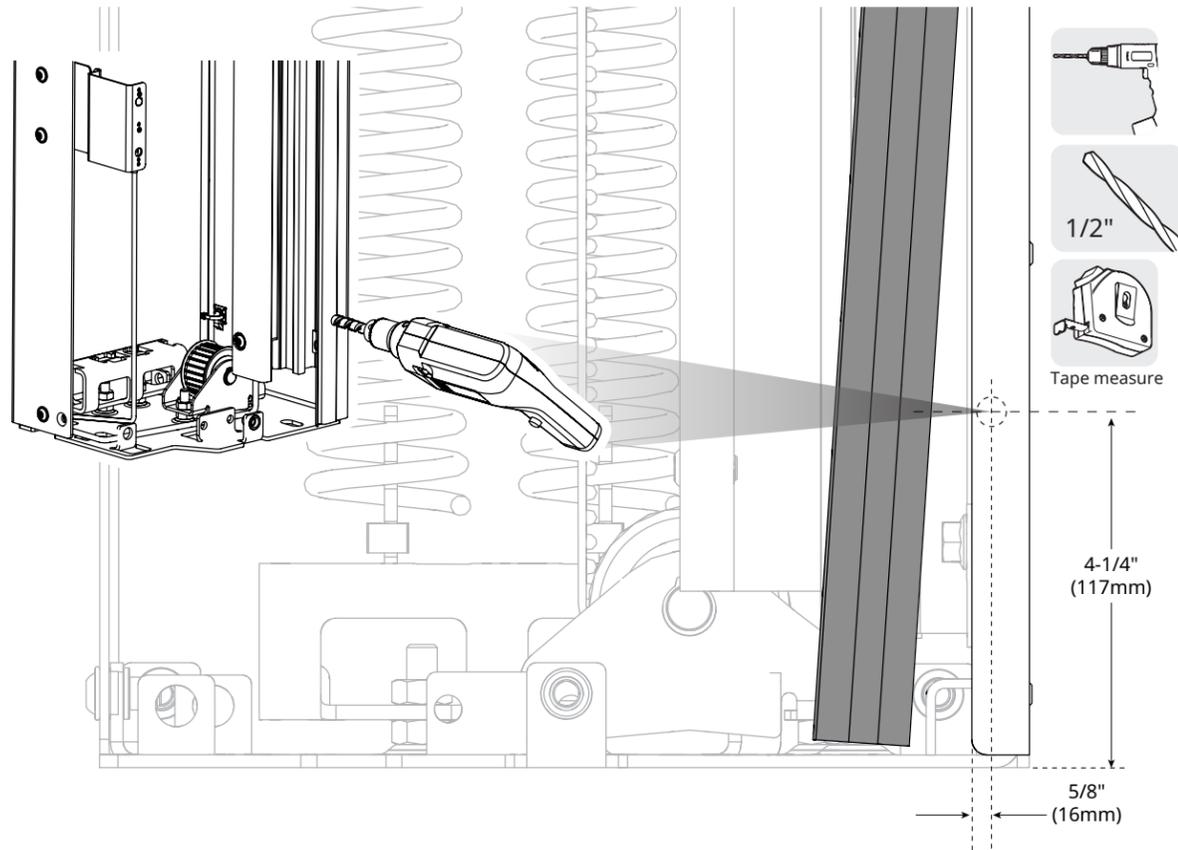
**13 Drill out** the hole in the rear of the side column for the cable from the jamb mounted SmartSurround™.

**IMPORTANT**

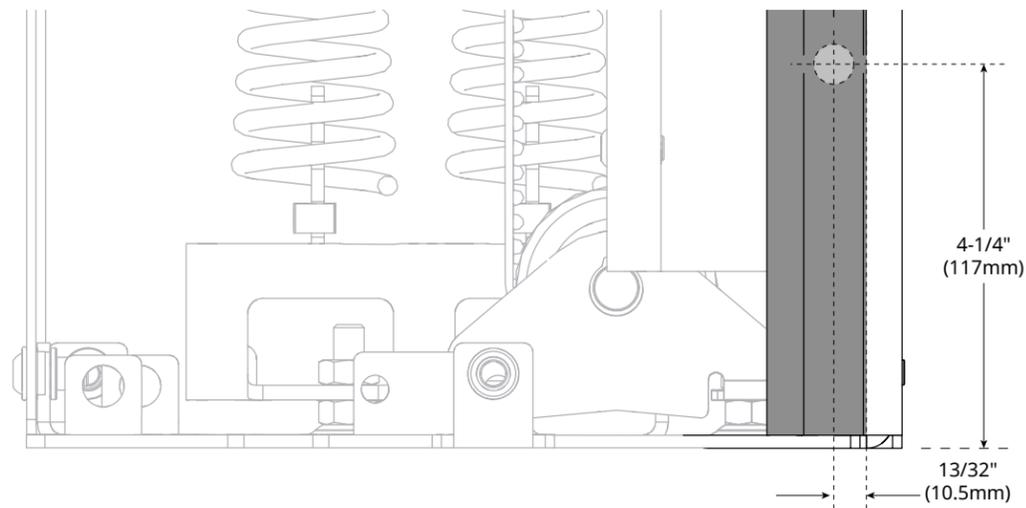
**Make sure** there are no cables where you are drilling. If necessary, wait until you have removed the current cabling before doing this step.

**Repeat these steps** on both sides of the door.

1. First, **pull back** the bottom of the rear seal to expose the lip of the side column. **Drill out** the lip.



2. **Mark** the hole location on the seal, set it firmly back in place, and **drill out** the seal.



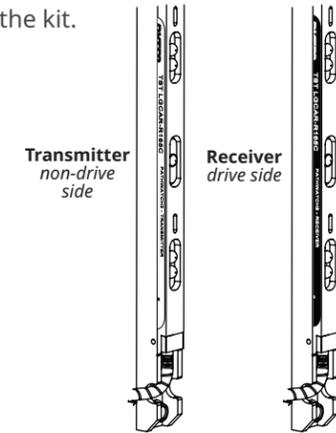
**14 Get** the jamb mounted SmartSurround™ transmitter and receiver from the kit.

**IMPORTANT**

**Make sure** the jamb mounted and cover mounted SmartSurround™ transmitters are both on the **non-drive side of the door**.

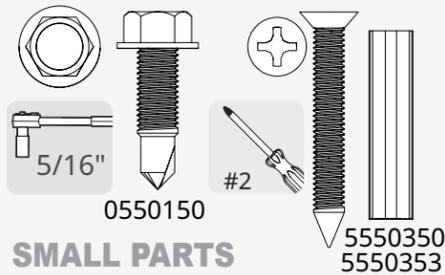
**Make sure** the jamb mounted and cover mounted SmartSurround™ receivers are both on the **drive side of the door**.

**Check the labels** at the bottom of the light curtains to match.



**15 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.



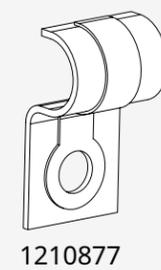
**SMALL PARTS**

Use two (2) supplied P-clips to secure cable tightly to wall

Place one clip one to two inches (1-2") from SmartSurround™

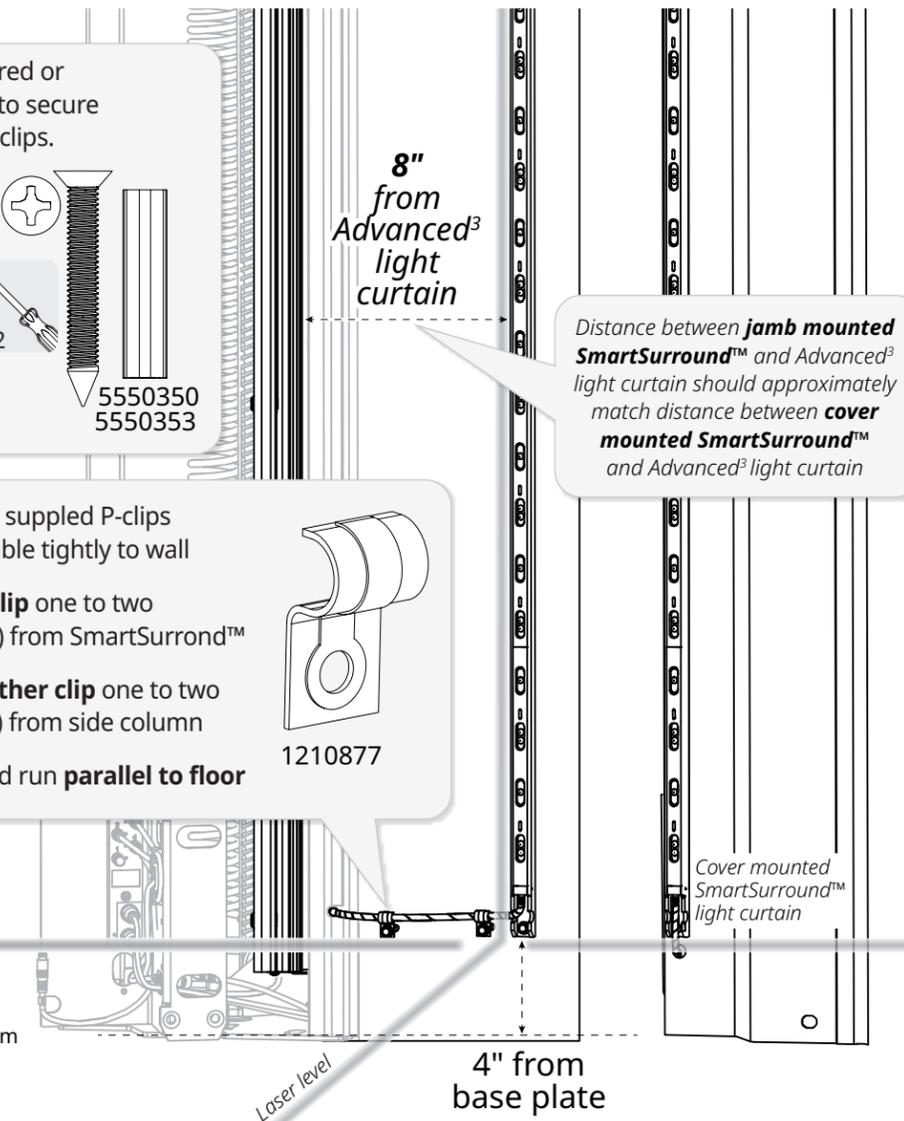
Place the other clip one to two inches (1-2") from side column

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**.



Distance between **jamb mounted SmartSurround™** and **Advanced<sup>3</sup> light curtain** should approximately match distance between **cover mounted SmartSurround™** and **Advanced<sup>3</sup> light curtain**

**OPTIONAL: How to install the BTA4 user terminal frame**

**IMPORTANT** Check with the door owner whether they want the BTA4 installed into the side column or remotely.

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

Position it on the drive-side side column.

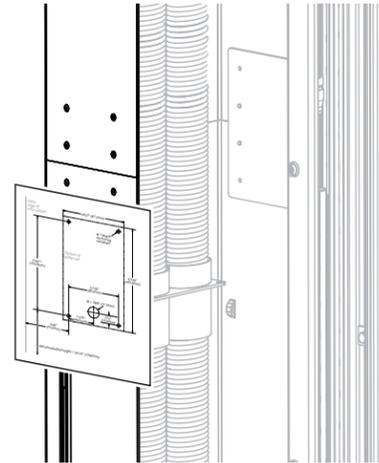
**Make sure** there is a flat, unobstructed space on the column that is large enough to fit:

- the entire frame of the unit (4.5" x 6")
- a minimum of 3" clearance from the outer edge of the side column.

**Make sure** the area where the holes will be drilled is free of all cables, hardware and components inside the column.

If there is not enough free, unobstructed space, **install the frame into the wall next to the door.**

**IMPORTANT**



**2** If the side column can fit the template, use the template to drill the four screw holes in the side column ①.

If the side column cannot fit the template, use the template to drill the four screw holes in wall near the door ②.

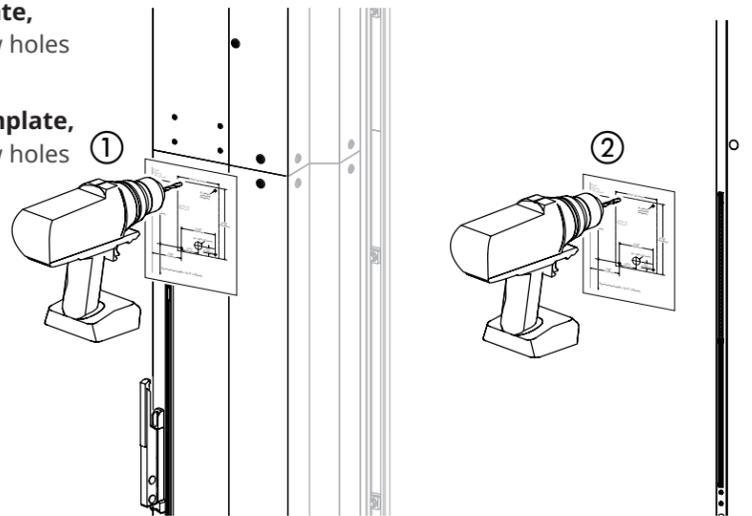
**Match the drill bit** to the supplied hardware or your own.

**If mounting to the wall, match** the correct depth for the hardware.

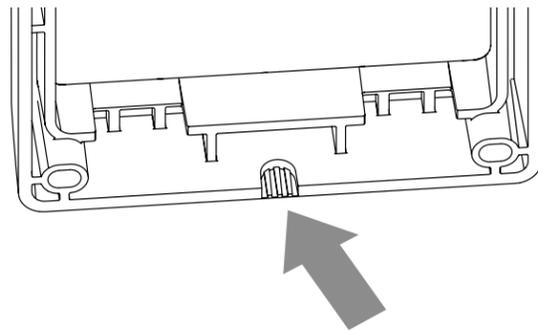
**Use** a step bit to drill the large hole for the cable.

**IMPORTANT**

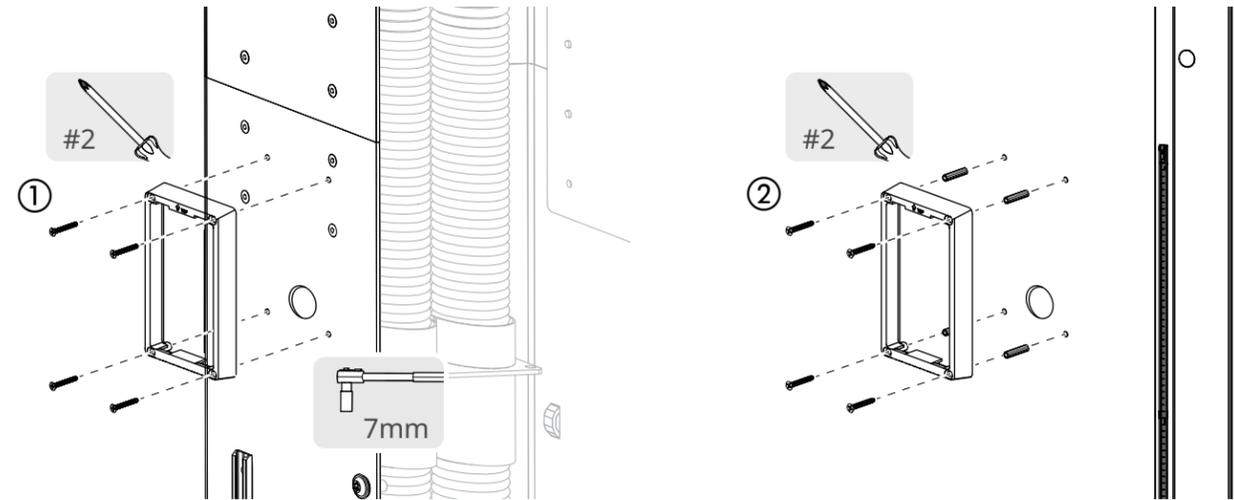
**NOTE:** if the wall mount does not make it possible to run the cable inside the wall, you can run the cable out of the bottom of the frame.



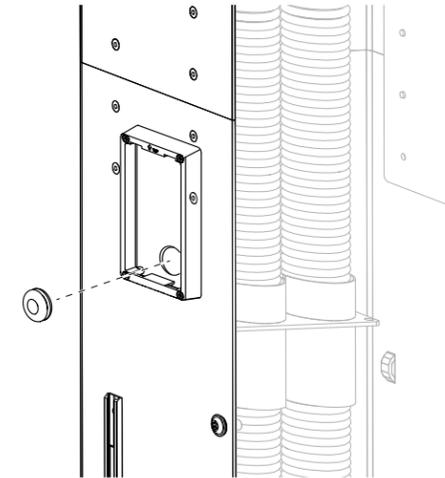
**3** If you are mounting the unit to the wall and cannot run cable inside the wall, **snap off** the perforated tab at the bottom of the frame.



**4** Install the BTA4 frame using the supplied hardware for side column ① or wall ② mounting, or your own. If necessary, remove the side column cover to install the frame.



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

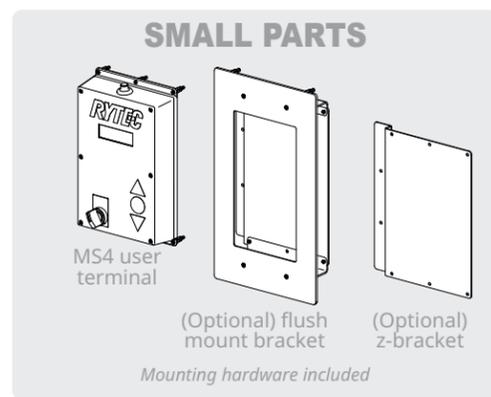


**OPTIONAL: How to install the MS4 user terminal**

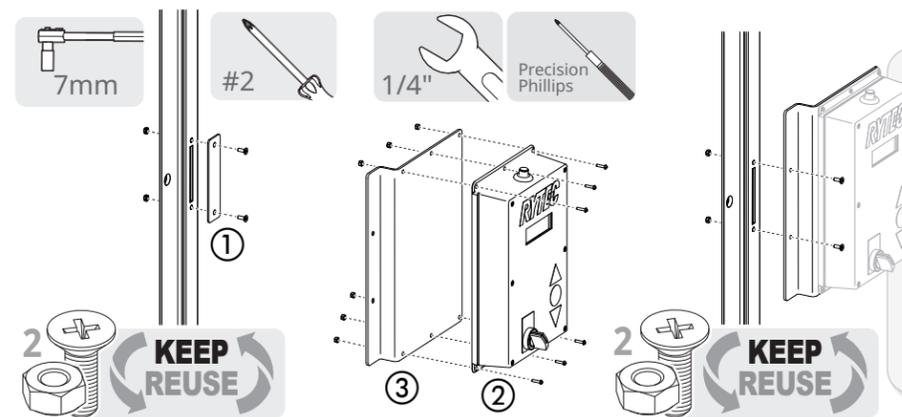
**IMPORTANT**

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

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

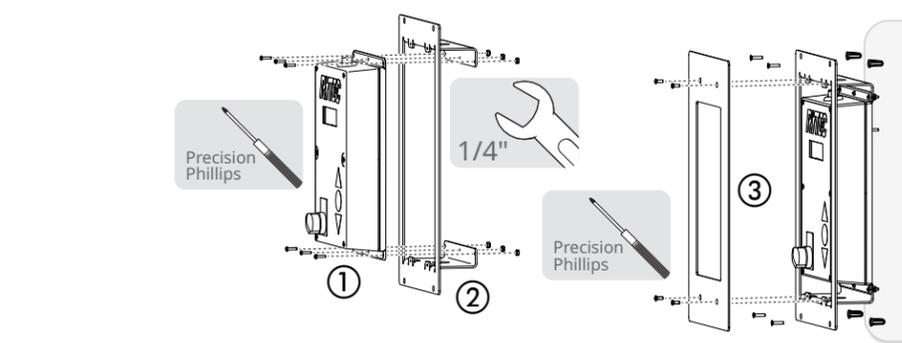


**2** Anchor the user terminal at an easily accessible height using the included hardware. The user terminal can be mounted onto the wall, flush to the wall using the optional bracket, or onto the side column using the optional z-bracket.



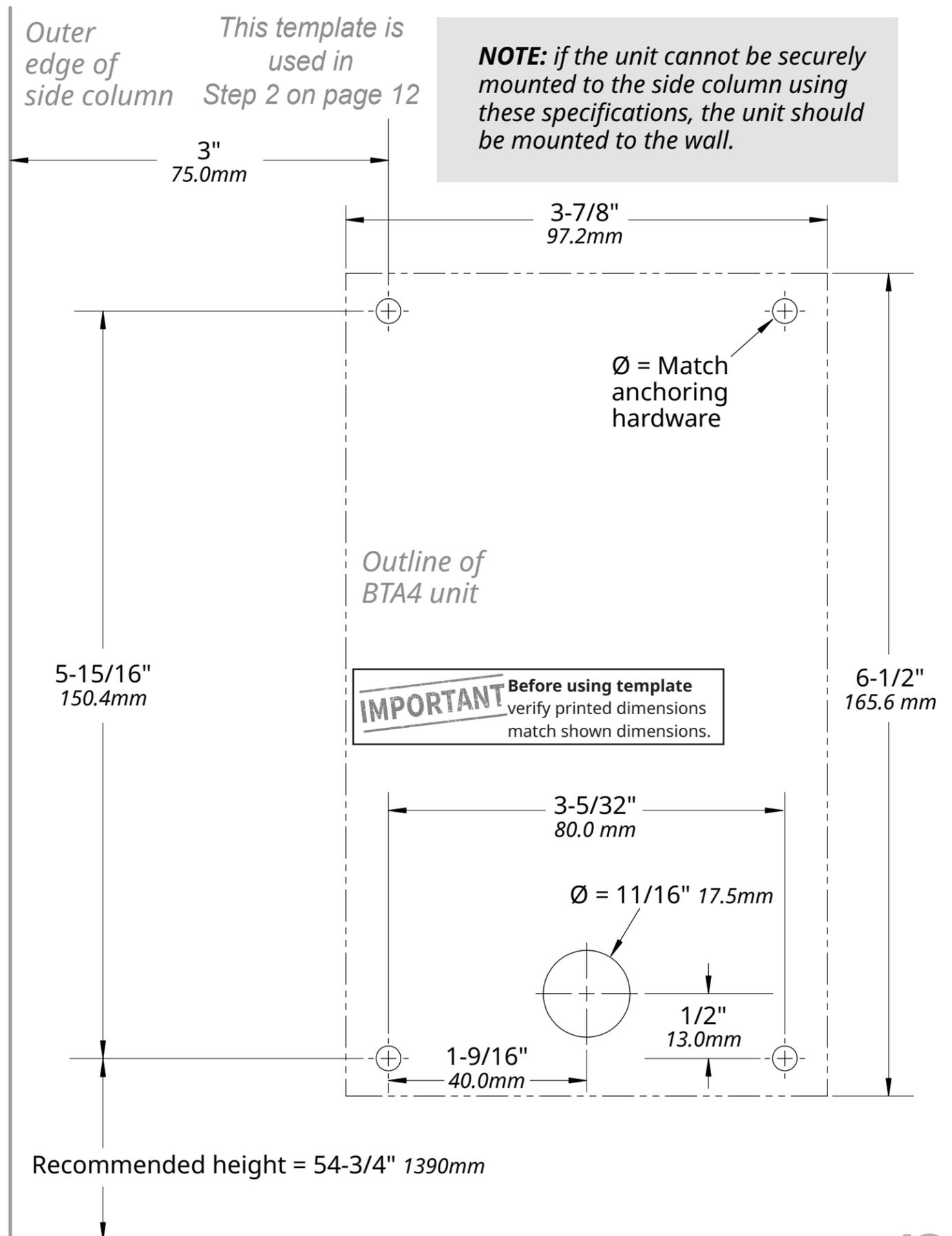
**Side column mount**

1. Remove plate ① from non-drive side column.
2. Install the user terminal ② onto the z-bracket ③ 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 ① onto the flush mount bracket ② using supplied hardware.
3. Anchor bracket to wall using supplied hardware.
4. Install the cover plate ③.



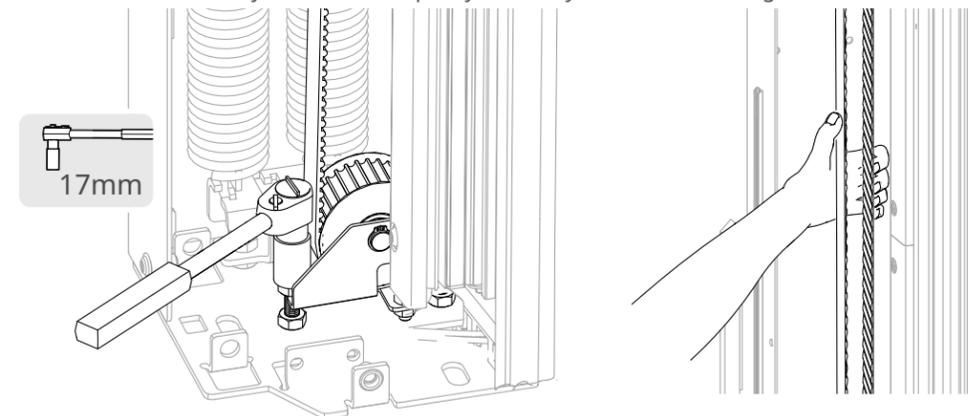
## How to remove the Pathwatch, light curtains and internal cabling

- 1** **Remove** hood covers and panels all allow access to the head assembly consoles and the rear spreader. If the door has a hood cover ①, **remove** all of the top panels. Then **remove** the front panels ② on both ends of the door.
- Remove the front console cover** ③ on the non-drive side to allow access to the controller.

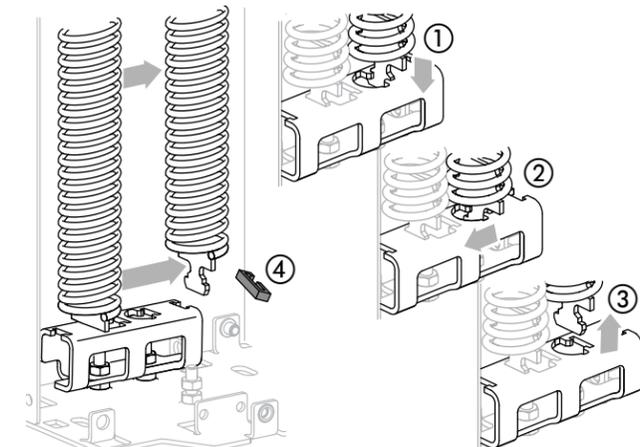


Back of BTA4 template  
Intentionally left blank

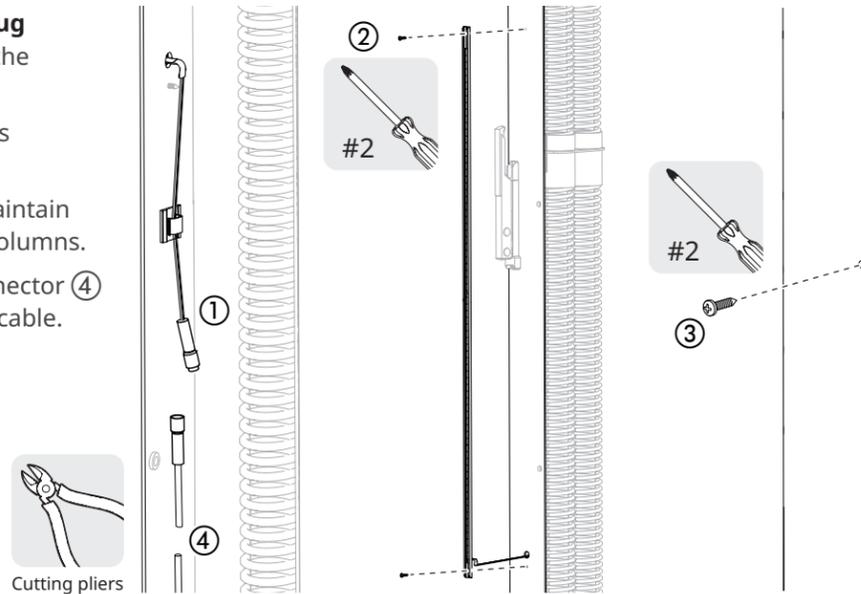
- 2** **Loosen** the secondary drive belt until there is considerable slack. This makes it easier to access the back of the side column.
- You will need to **loosen** the screws and **move** the CAN bracket out of the way to access the pulley assembly.
  - It should not be necessary to remove the pulley assembly from the mounting bolt.



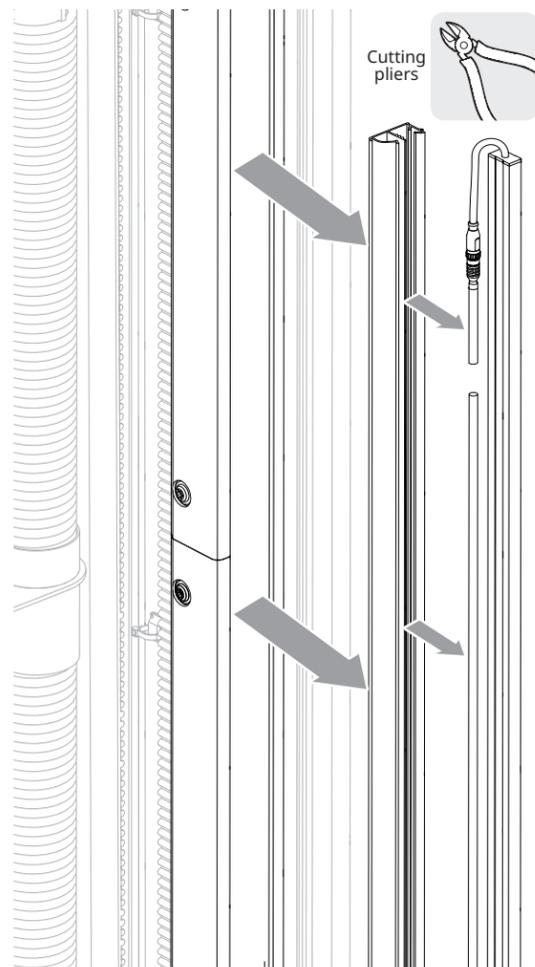
- 3** **If necessary to freely access the back of the side column**, remove the springs from the baseplate tube.
- If there are **locking collars on the spring tabs** ④, remove them first. You will reinstall them when the springs are reinstalled.
- Push down** on the bottom of the spring to release the tab ①, **slide** the spring through the narrow slot ②, then **pull out** of the wide slot ③.



**4** In both side columns, unplug the Pathwatch LED strips at the quick connect ①.  
 Remove the Pathwatch strips from the side columns ②.  
 Replace the screws ③ to maintain the appearance of the side columns.  
 Cut the cable below the connector ④ and discard that part of the cable.



**5** Remove the light curtain transmitter and receiver from the door tracks. Cut the cables below the connectors.  
 Remove the track clip/wire chase that hold them in place.



There may be **one long** track clip or **multiple smaller** ones.

**IMPORTANT**

Service techs may have used additional strips of double sided tape or adhesive to secure the clips.

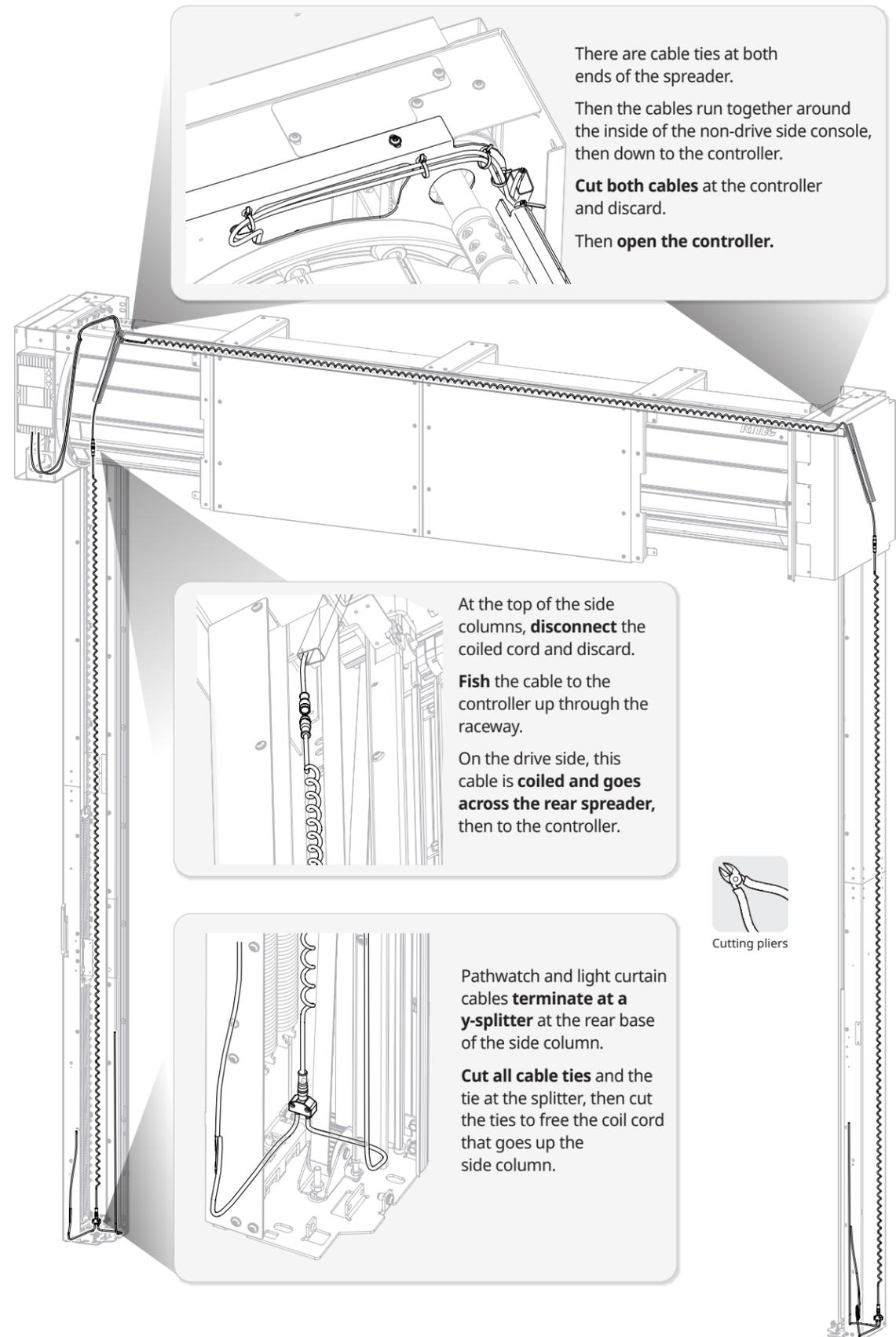
You may need to **use a chisel** to remove the clips from the door tracks.

**Make sure** the door tracks are not damaged, and **fully clean** the tracks to remove any adhesive residue.

The new track clips are held in place by friction.

Some doors have **washers, bumpers or brackets** added to the bottom of the door track to prevent the clips from slipping. These can **remain in place**.

**6** Remove the light curtain and Pathwatch cabling all the way to the controller.



There are cable ties at both ends of the spreader.  
 Then the cables run together around the inside of the non-drive side console, then down to the controller.  
**Cut both cables** at the controller and discard.  
 Then **open the controller**.

At the top of the side columns, **disconnect** the coiled cord and discard.  
**Fish** the cable to the controller up through the raceway.  
 On the drive side, this cable is **coiled and goes across the rear spreader**, then to the controller.

Pathwatch and light curtain cables **terminate at a y-splitter** at the rear base of the side column.  
**Cut all cable ties** and the tie at the splitter, then cut the ties to free the coil cord that goes up the side column.

## How to rewire the controller and replace an older comm board

### ⚠ WARNING



Set the fused disconnect to the **OFF** position and perform a lockout/tagout of the high-voltage disconnect before opening the control box. Do not set the disconnect switch to the ON position until told to do so by these instructions.

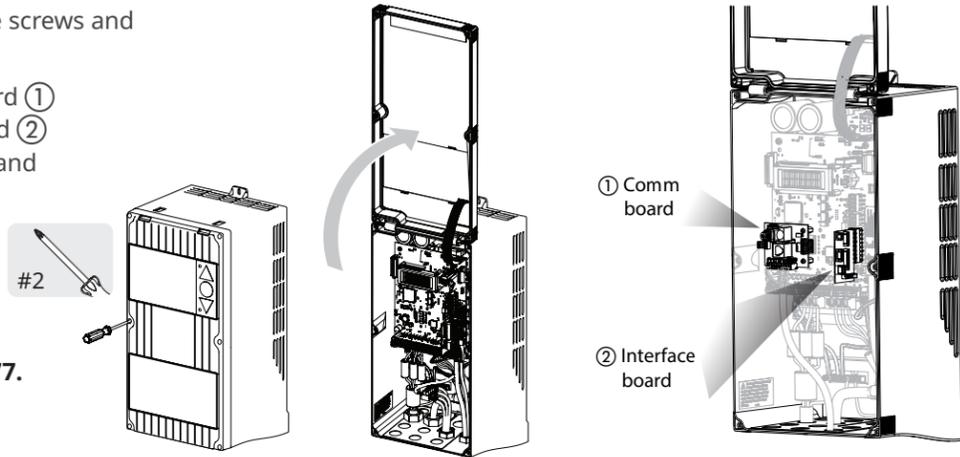


**Failure to comply could result in shock, burns or death.**

**1** Loosen the six capture screws and open the control box.

Locate the comm board ① and the interface board ② and identify the wires and cables that need to be removed or reconnected.

The interface board is plugged in to terminal block 270-277.

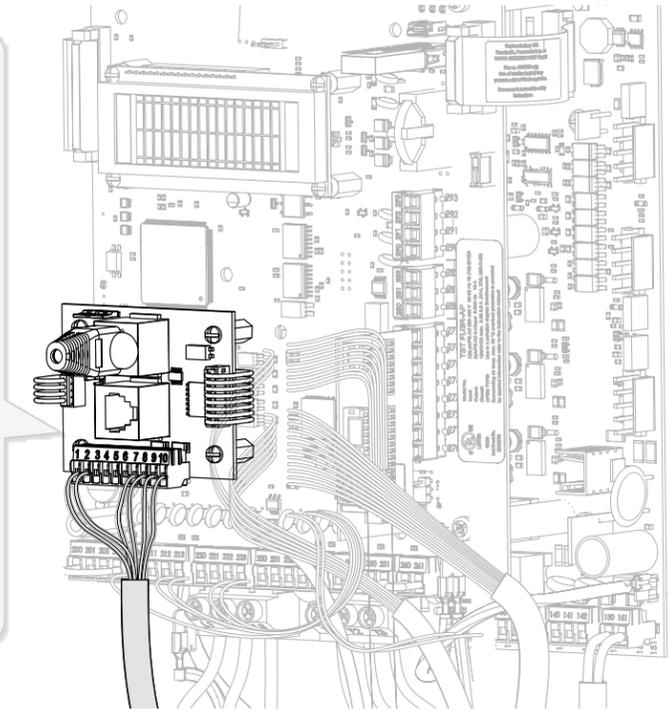
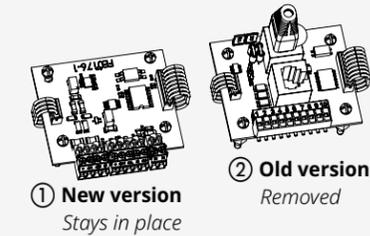


### Comm board

Wire colors vary

The comm board may be the newer version ①, which stays in place, or the older version ②, which is removed and replaced by the newer version comm board included in the kit.

The cable, whether it goes to an MS4 or BTS4, is removed.



### Proximity sensor cable

Wire colors: black, blue, brown

The proximity sensor cable stays in place. Wires are trimmed, then installed into terminals 234, 240, and 241 after the interface board is removed.

### Encoder cable

Wire colors: white, green, yellow, blue, gray, pink, red, brown

The encoder cable stays in place. Wires are trimmed, then installed into terminal block 270-277 after the interface board is removed.

### Light curtain and Pathwatch cables

Wire colors (12-pin): purple, black, peach, orange, red, blue, pink, gray, green, yellow, brown white

Wire colors (7-pin): blue, pink, gray, yellow, green, brown, white

Both of these cables are removed after the Pathwatch and light curtains are removed.

### Wires from interface board

Wire colors (2-pin): blue, pink

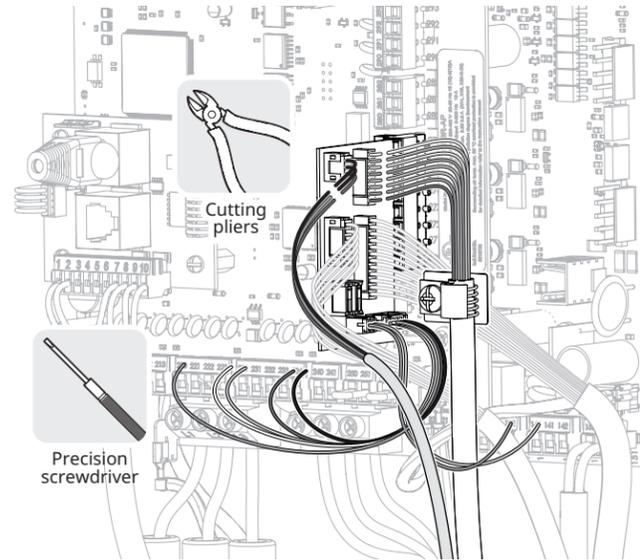
Wire colors (5-pin): pink, white, gray, brown, black

These wires are disconnected from their terminal connections and removed with the interface board.

**2** Cut the wires for the encoder and the proximity sensor.

Disconnect the wires from the interface board.

Leave the cables in place.

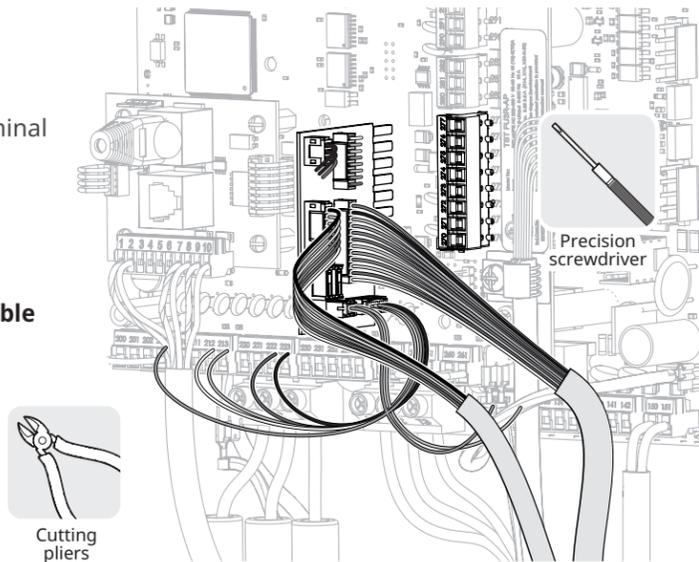


**3** Remove the interface board from terminal block 270-277.

Pull terminal block 270-277 off the microcontroller board, loosen the eight terminal screws, then pull off the interface board.

Plug terminal block 270-277 back into the microcontroller board.

Cut the two light curtain/Pathwatch cables where they enter the controller, loosen the cable glands to release the rest of the cables, and discard the board, cables and attached wires.



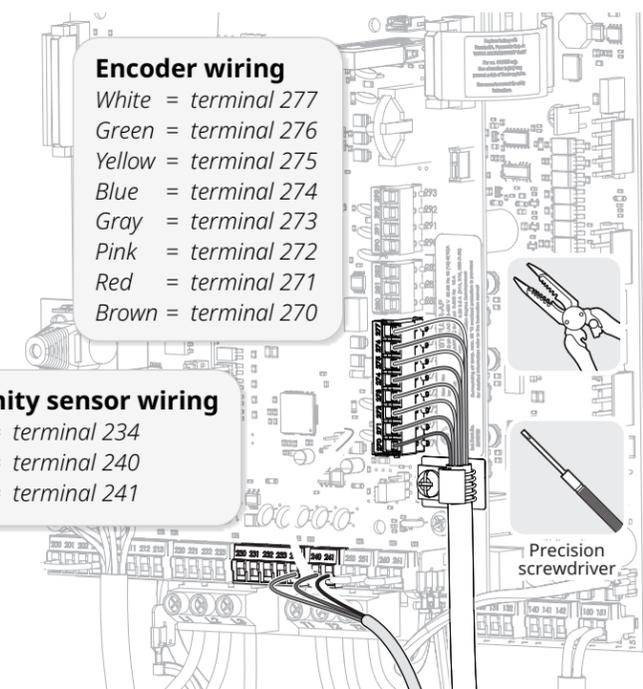
**4** Trim the wires for the encoder and the proximity sensor to minimize slack, expose 1/4" of clean copper, and reconnect the wires into the terminals listed here.

**Encoder wiring**

- White = terminal 277
- Green = terminal 276
- Yellow = terminal 275
- Blue = terminal 274
- Gray = terminal 273
- Pink = terminal 272
- Red = terminal 271
- Brown = terminal 270

**Proximity sensor wiring**

- Blue = terminal 234
- Black = terminal 240
- Brown = terminal 241



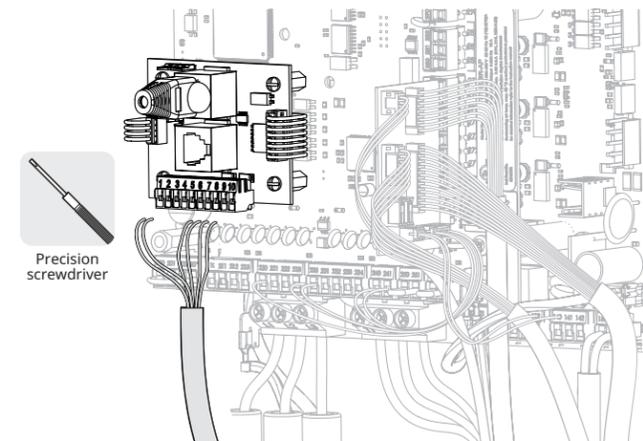
**5** Disconnect all wires to the comm board.

There may be additional wires from the cable connected to other terminals. Disconnect them as well.

Remove and discard the cable.



You may need to use the cable to fish the replacement cable to the user terminal for wall mounted terminals.



**If the controller has an older comm board installed, replace it with the comm board from the kit**

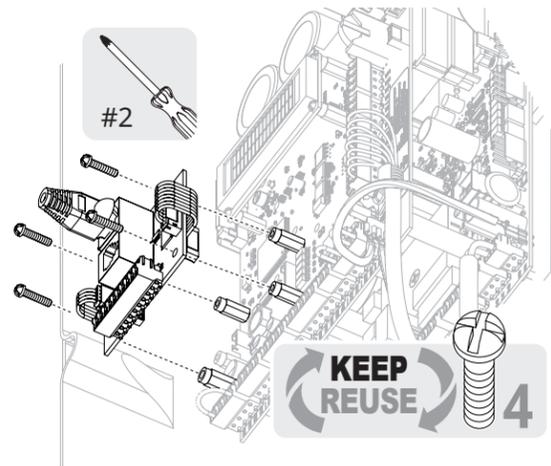
**1** If this controller has an older comm board, Get the comm board from the kit.

Loosen the four plastic screws and **remove** the old board, **leaving the legs in place.**

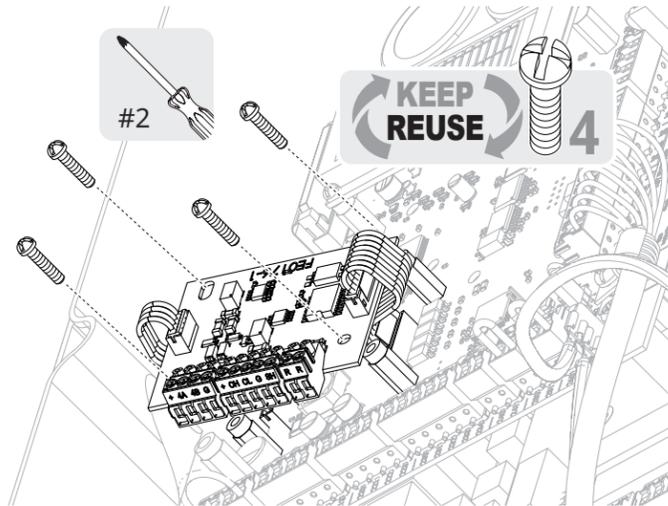
**Pull out** the four-wire and eight-wire connectors to free the board.

**Discard** the old board.

**Remove the legs** from the new board.



**2** Plug in four-wire and eight-wire connectors on the new board, then reinstall the four plastic screws to secure the new board in place.

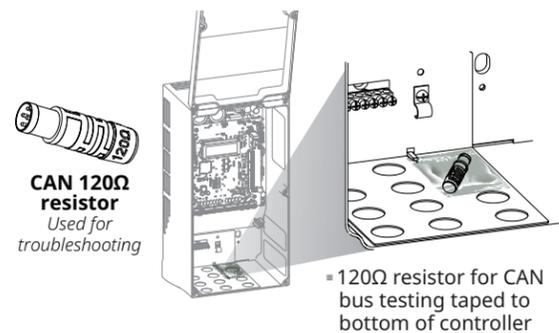


**3** Get the 120Ω resistor from the kit.

**IMPORTANT**

The resistor should be placed **inside the controller** so that it can be found if there is a need to troubleshoot the CAN bus system.

**Tape** the resistor to the bottom of the controller.



**How to install the Advanced<sup>3</sup> light curtain and side column CAN bus cabling**

**1** Get the two Advanced<sup>3</sup> light curtains, track clips and 9-foot (1210800-E) M8 cable from the kit.

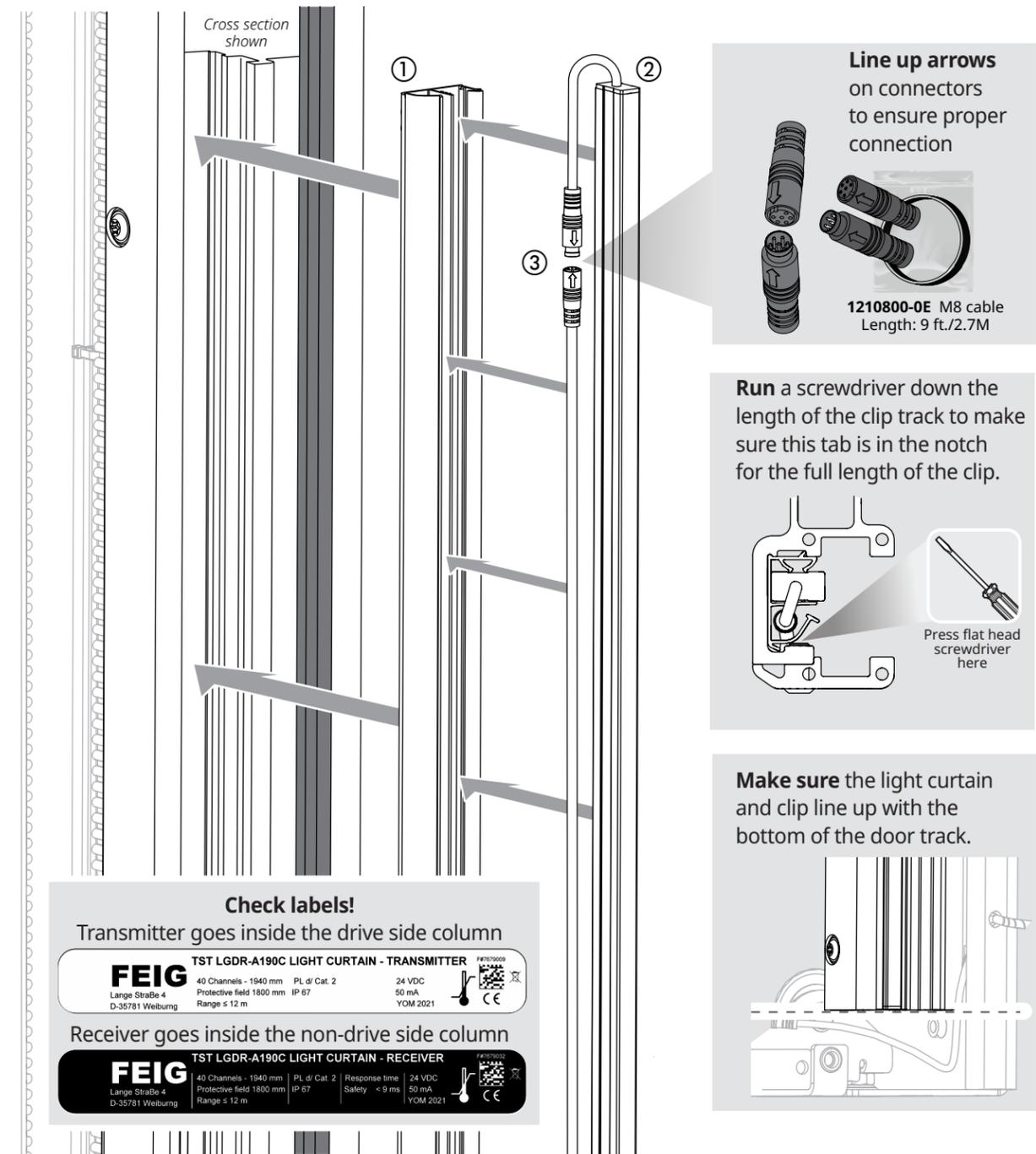
① **Install** the track clips into the door track. They are held in place by friction.

- **Line up** the bottom of the clip with the bottom of the door track
- **The fit is tight.** Run a flathead screwdriver down the length of the clip to ensure it is fully seated in the track.

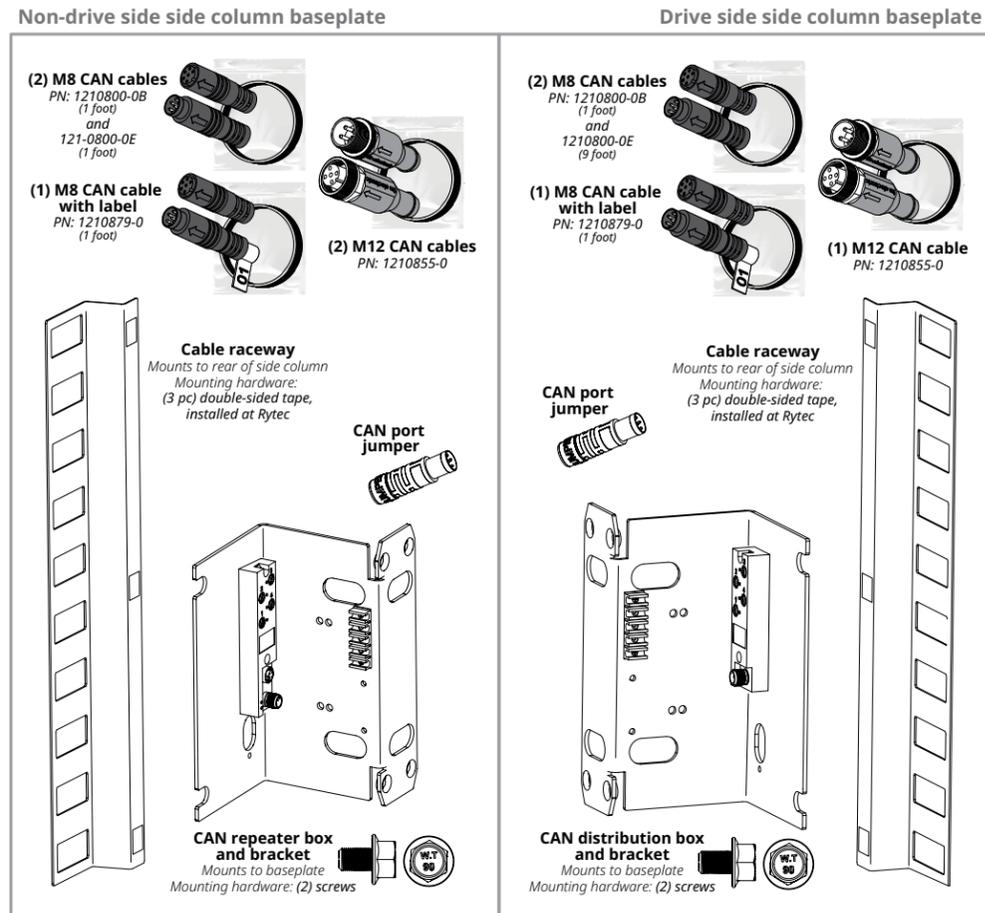
② **Install** the Advanced3 light curtains into the clips. They are also held in place by friction.

- **Make sure** the transmitter is installed into the drive side, and the receiver is installed into the non-drive side.
- **Line up** the bottom of the light curtain with the bottom of the track.

③ **Connect** the 1210800-E M8 cables to the light curtains and run the cables inside the length of the clip.



**2** Get all parts from the kit for the drive side and non-drive side baseplates.



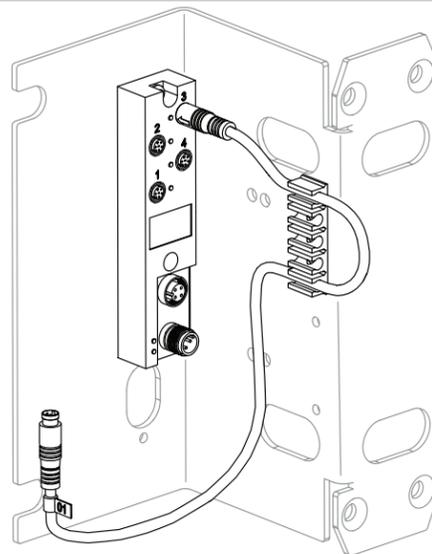
Parts shown are for a right-hand drive side door.

**NOTE:** CAN repeater boxes have two ports for M12 cables. In a Spiral Prewire, they are located on the drive side baseplate and the drive side console. The CAN distribution box has one port for an M12 cable and is located on the non-drive side baseplate.

**3** Repeat all steps on the drive and non-drive side of the door.

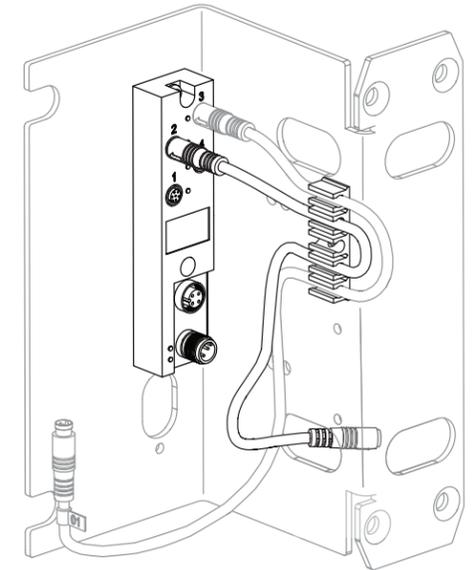
Do the next three steps **BEFORE** you install the brackets into the side column baseplates.

Install the labeled 1-foot M8 cable into **port 3** of the boxes on both brackets and through the top and bottom slots on the holders.

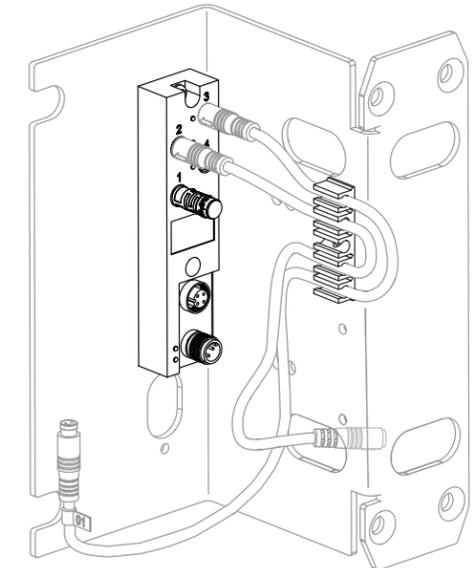


**4** Install the other 1-foot M8 cables into **port 2** of the boxes on both brackets and through the second and fourth slots in the holders.

- This cable connects to the cable from the **jamb mounted SmartSurround™** light curtain.
- **Push** the connector through the opening in the bracket.



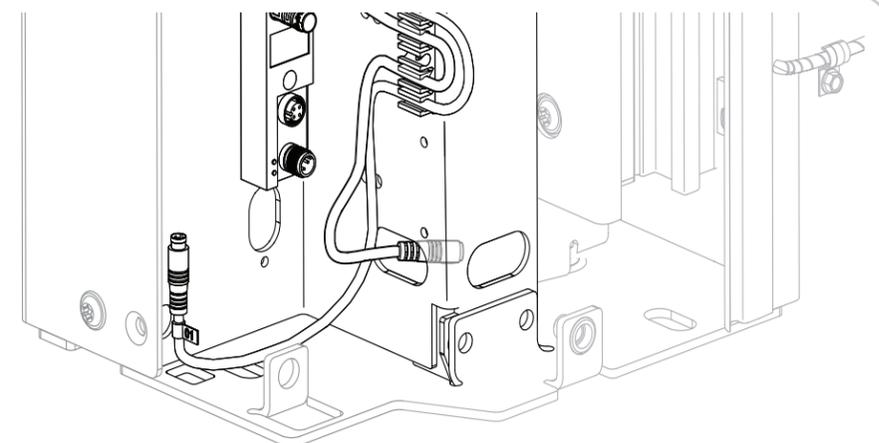
**5** Install the jumper into **port 1** of the boxes on both brackets.



**6** Place the brackets into the baseplates of the side columns.

**IMPORTANT**

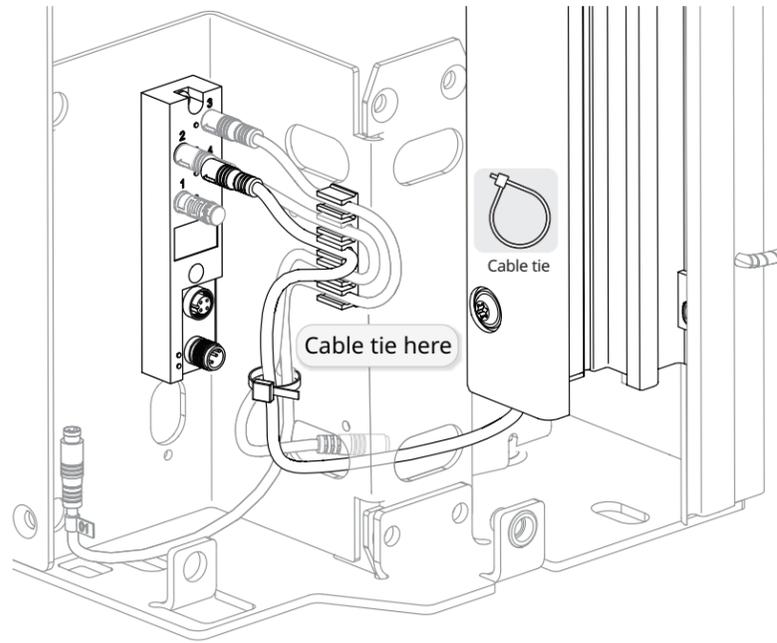
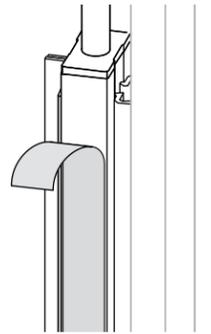
**DO NOT bolt them in place.** You will secure them in place **later**.



**7** Route the cable from the Advanced<sup>3</sup> light curtains in both side columns through both openings in the brackets.

**Plug** the connector into port 4.

**Remove** the protective film from the Advanced<sup>3</sup> light curtains once they are installed.



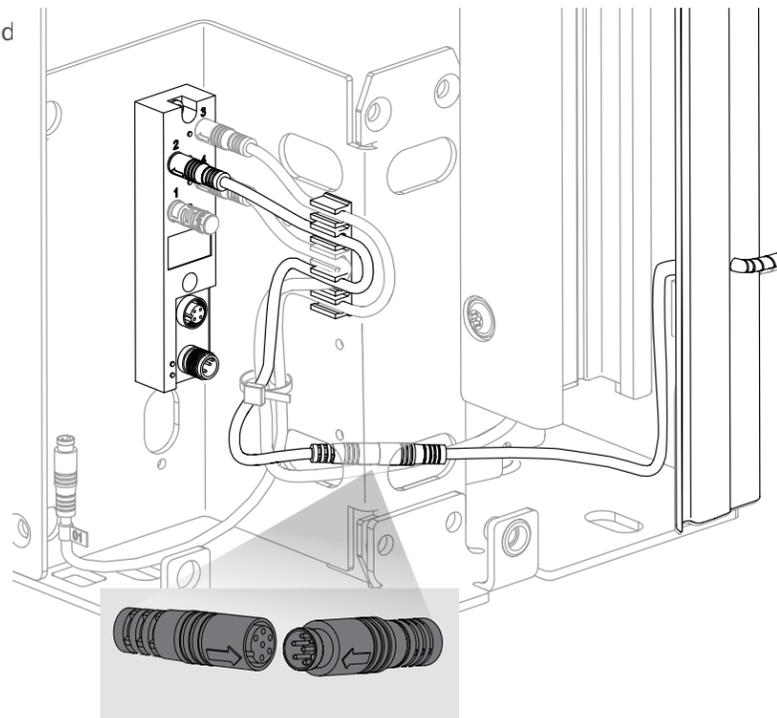
**8** Route the cable from the jamb mounted SmartSurround™ light curtain down the back channel of the vertical track **BEHIND and separate from the door track** to the floor of the baseplate.

**IMPORTANT**

**This routing** keeps the cable clear of the door panel rollers when the door opens and closes.

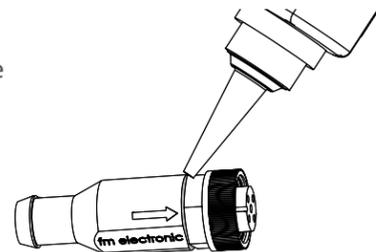
**Line up** the embossed arrows on the connectors to align the guide notch and contacts correctly, and **plug** the cable into the cable that connects to **port 2**.

**Route** the cables through both openings in the gasket.



**For all M12 connections:** on female connectors, a drop of WD-40 behind the nut on the locking ring makes it easier to turn the ring and fully secure the connection. **Spin** the ring to distribute evenly. **Do not overlubricate.**

**INSIDER'S TIP**



**9** Place cable ties in the holes of the two flanges near the side of the baseplates in both side columns to route the cables running up the side columns.

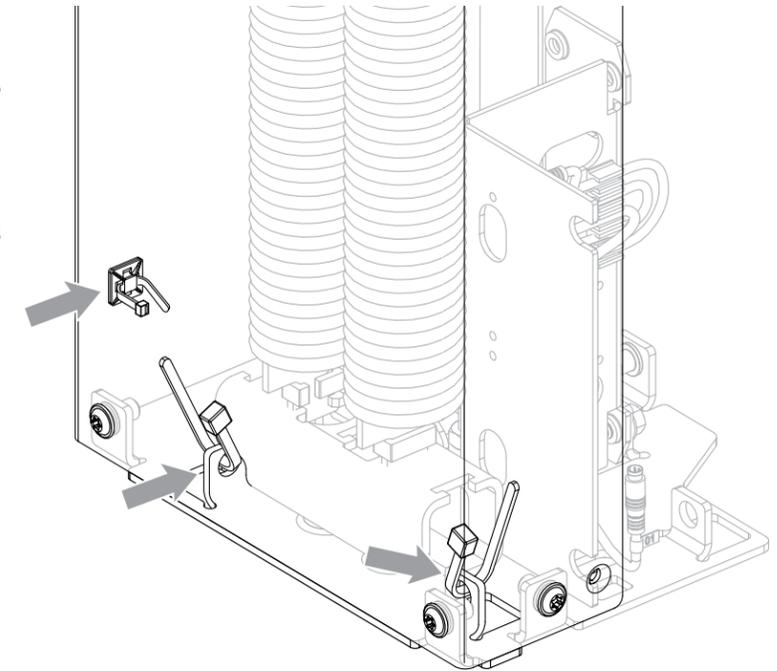
**Also place** a cable tie and anchor against the rear wall of each side column, near the outer wall and 4 inches above the base plate

**IMPORTANT**

**Wipe area down** with supplied alcohol wipes before placing cable tie anchors.

**IMPORTANT**

**This routing** keeps the cables clear of the spring assemblies.



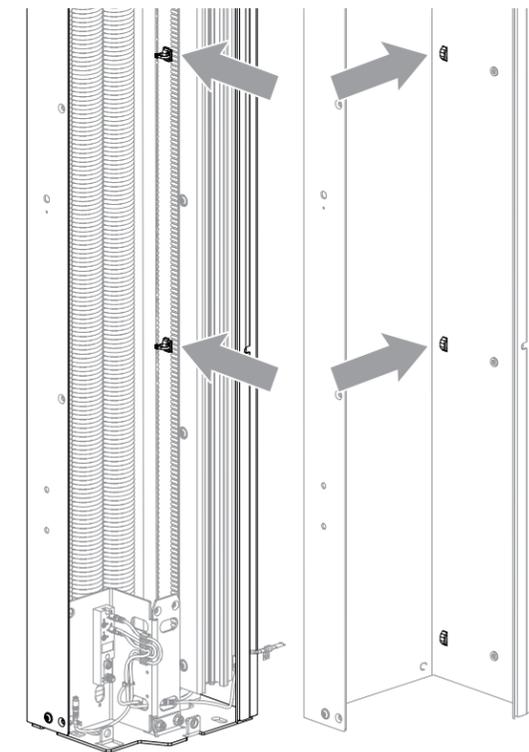
**10** Space cable ties and anchors every two feet up the rear wall of each side column.

**Make sure** to wipe down the surface with supplied alcohol wipes before securing anchor.

**If the side column** has built-in cable tie anchors (lance bridges), use them and skip this step.

**IMPORTANT**

**This routing** keeps the cables tight to the rear wall.

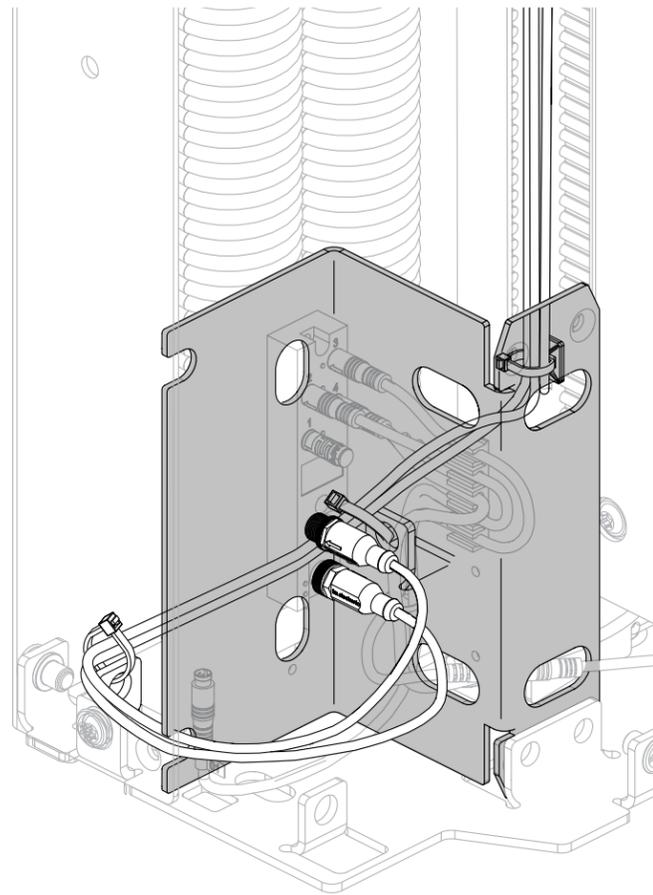
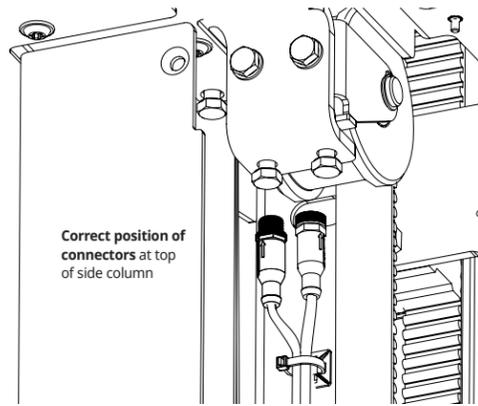


**11** Plug in the two M12 cables, run them through the opening at the bottom front of the bracket, and through the cable ties to the top of the side column.

**IMPORTANT**

There are two cables on the non-drive side and one cable on the drive side.

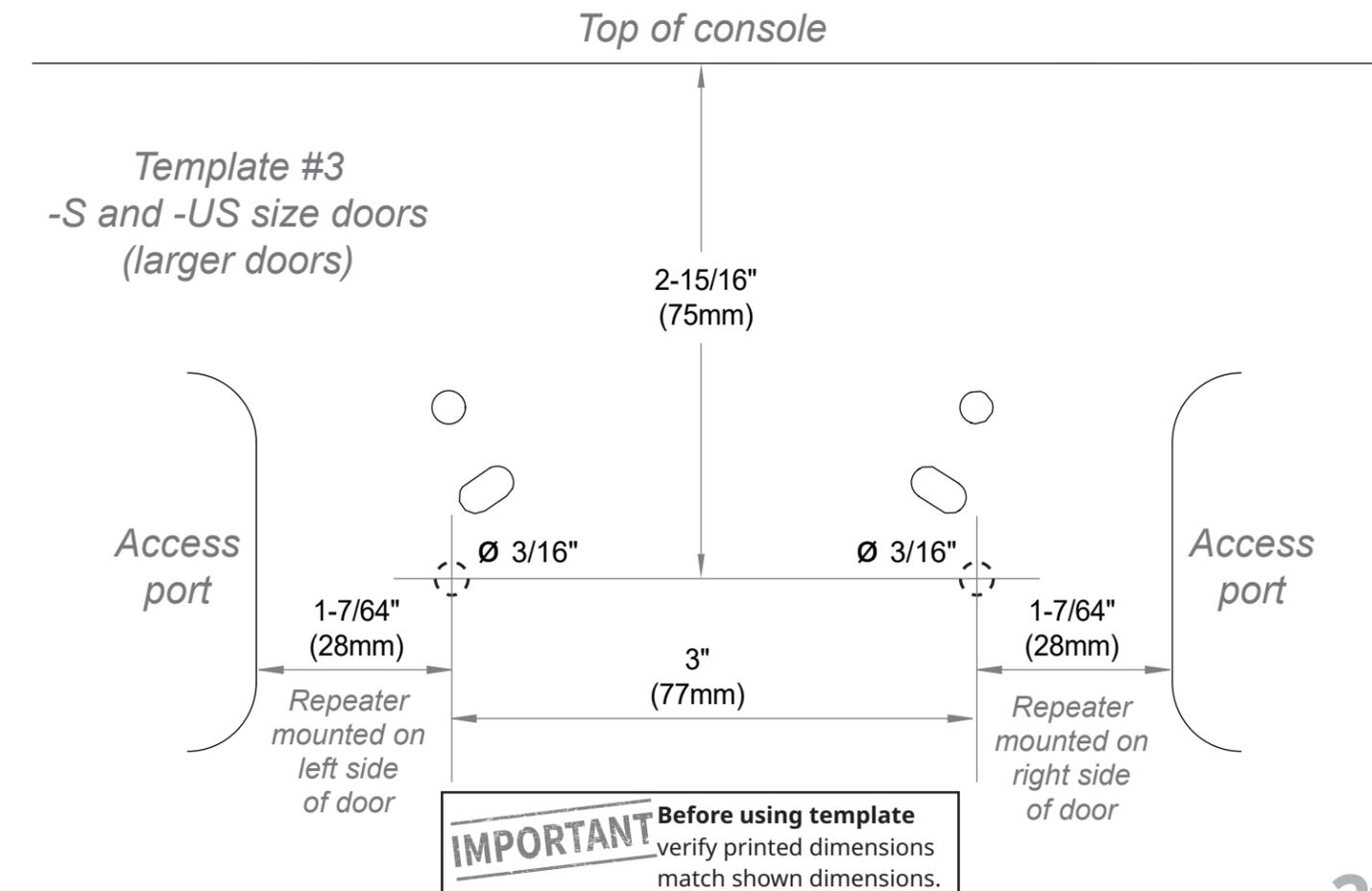
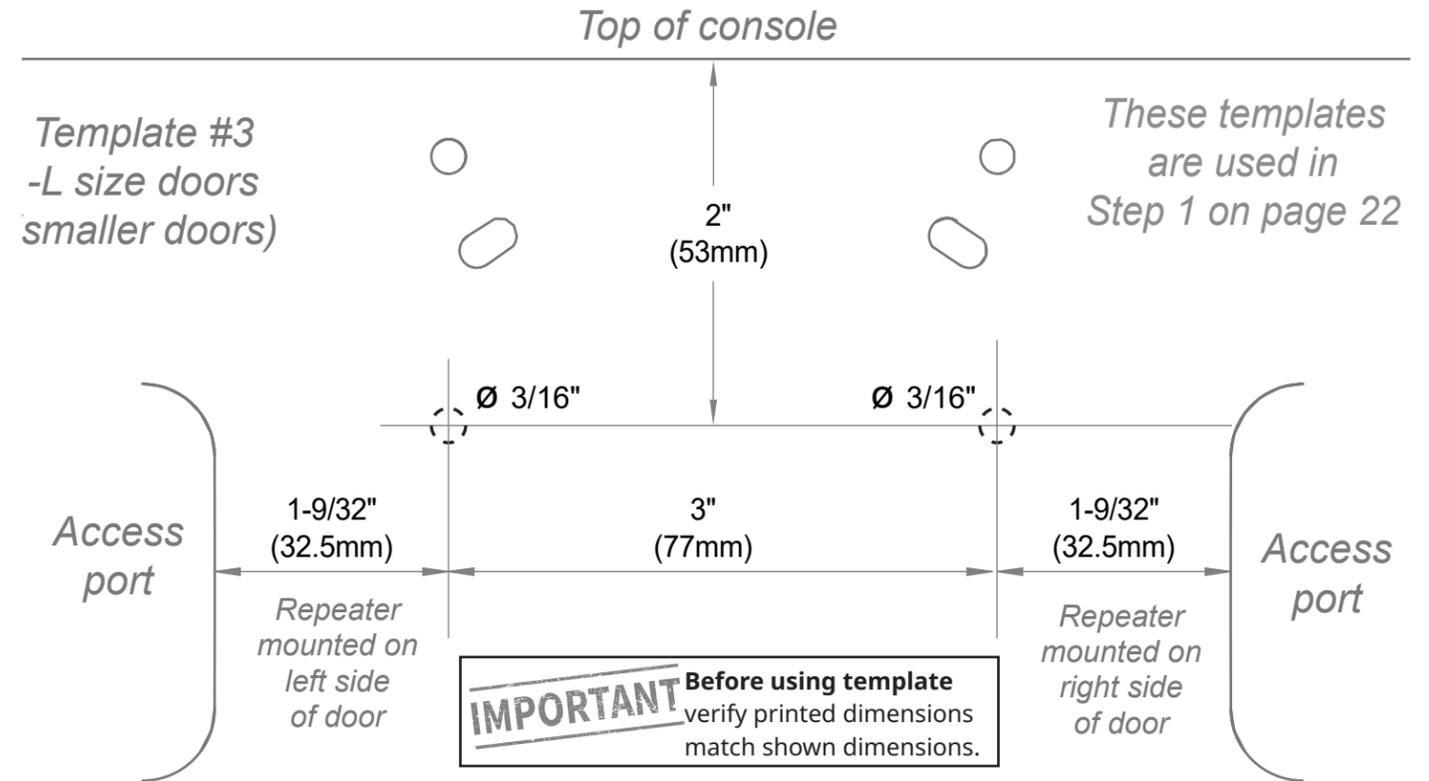
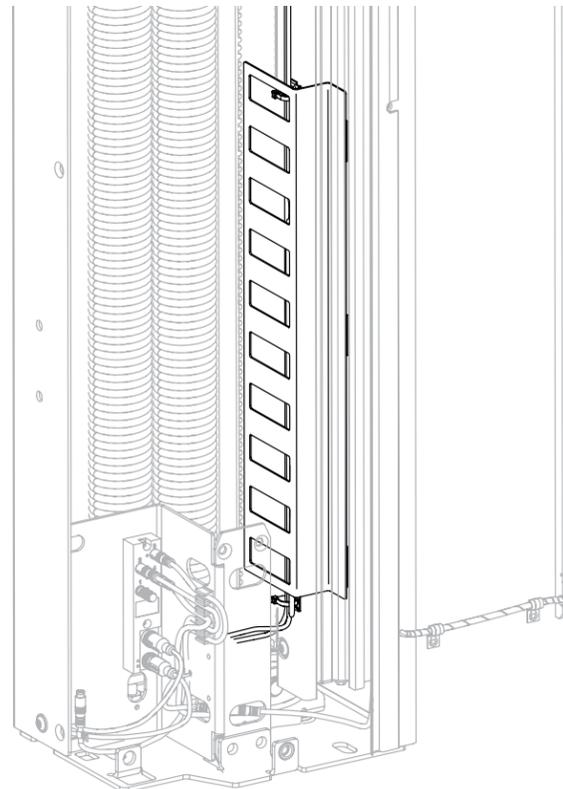
- In the non-drive side, the cable that terminates in a **male connector** connects via the short M12 cable to the CAN repeater in the console.
- The cable that terminates in a **female connector** connects to the M12 cable across the rear spreader.



**12** Peel the backing from the three strips of tape on the cable raceway, and install it against the rear of the side column just above the bottom anchor and touching the outer wall of the side column.

If there is extra length in the cables, fold it over and slide it behind the raceway.

Set all cable anchors tight.



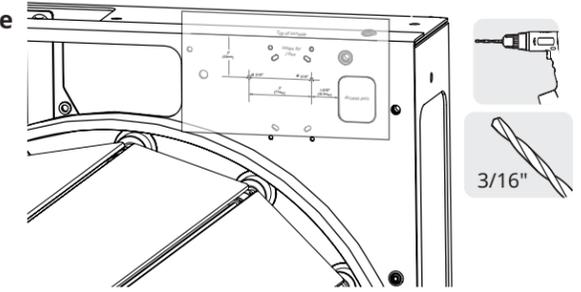
## How to install the head assembly CAN components and connect the rest of the CAN bus cables

Back of Template #3  
Intentionally left blank

**1** Cut out and line up template #3 from the previous page with the top of the drive side console and the rectangular access port.

Larger doors (-S and -US size) use the larger template.

**Drill holes** for the bolts that secure the CAN repeater box.



**2** Get all parts from the kit for the drive side console.

**NOTE:** The kit includes an **extra bolt and nut** for the CAN repeater box in the console. Discard them if they are not needed.

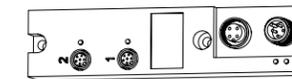


**The flying lead** is the only M12 cable with a connector on one end and bare wires on the other.

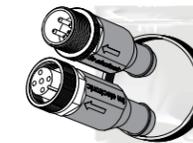
### Drive side console

#### CAN repeater box

Mounts inside console  
Mounting hardware:  
(3) bolts and nuts



(2) CAN port jumpers

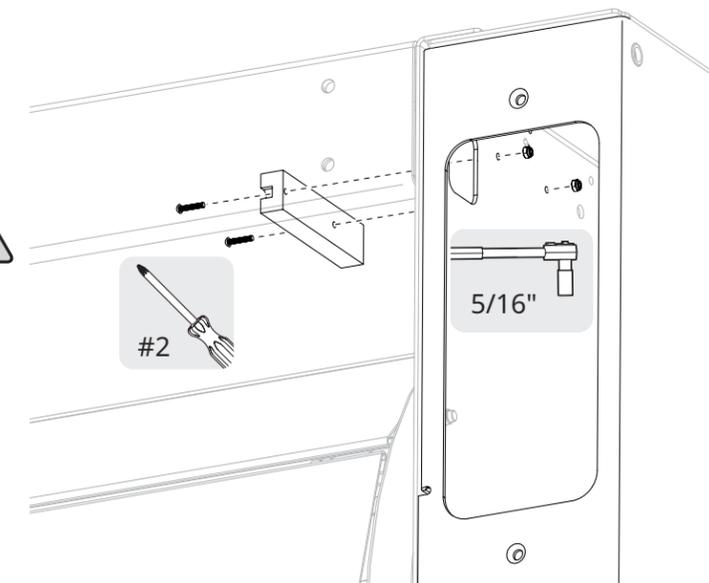


(2) M12 CAN cable  
PN: 1210855-0X  
one long, one short

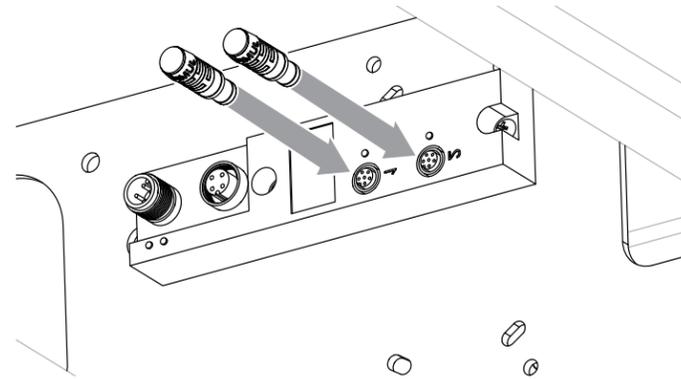
**3** Install the CAN repeater into the drive side console.



#2



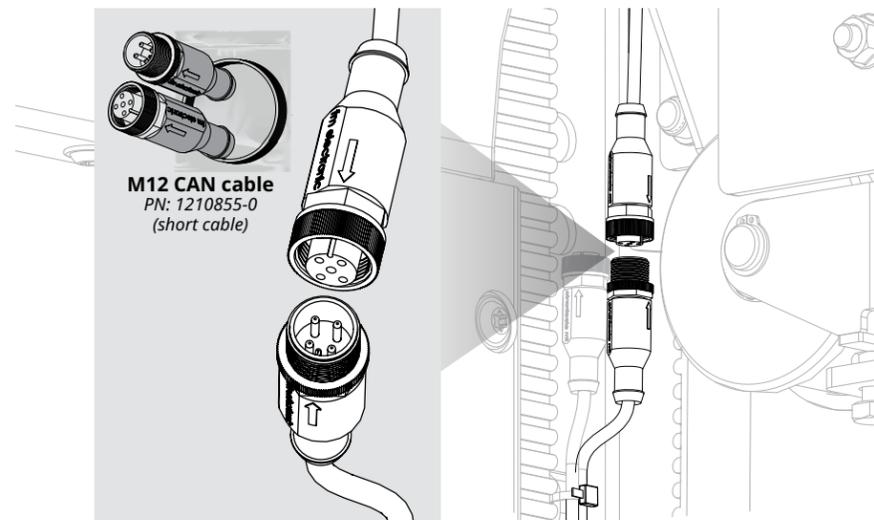
**4** Plug the jumpers into **port 1** and **port 2**.



**5** Get the short 1210855-0X M12 cable. Inside the **drive side console**, connect the female M12 connector for the cable to the male M12 connector for the cable running up the side column.

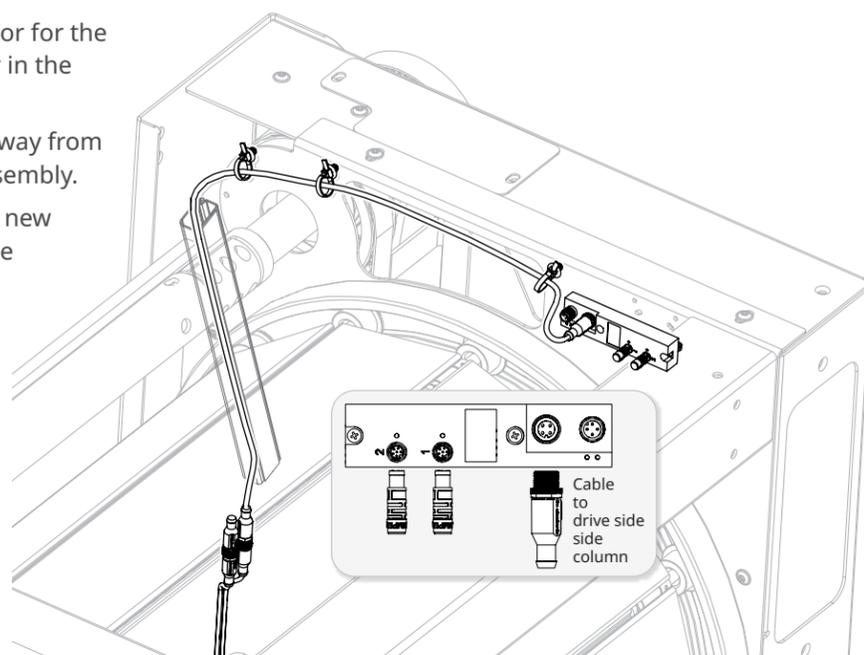
**IMPORTANT**

**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.

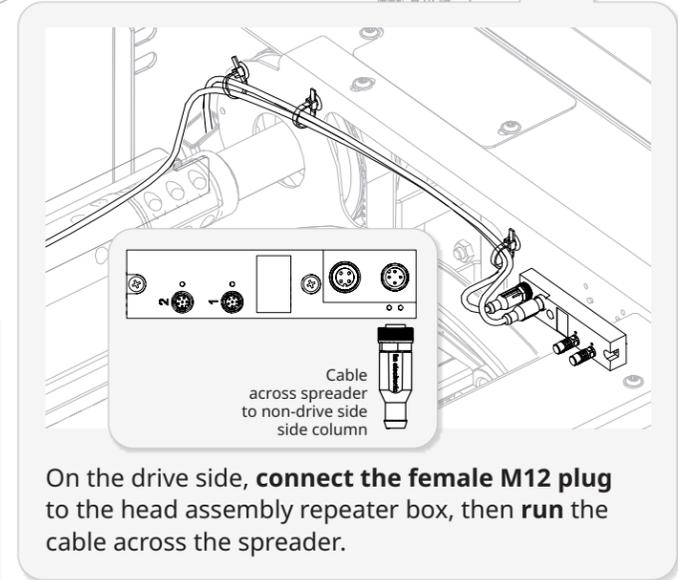
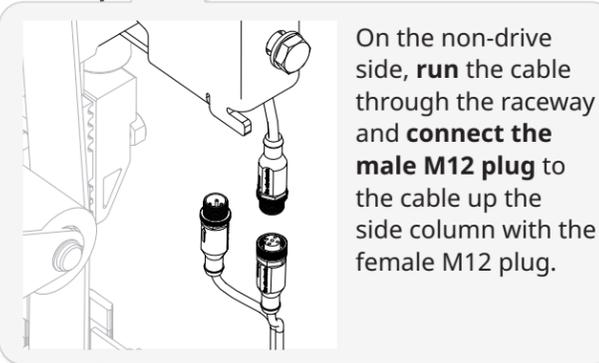
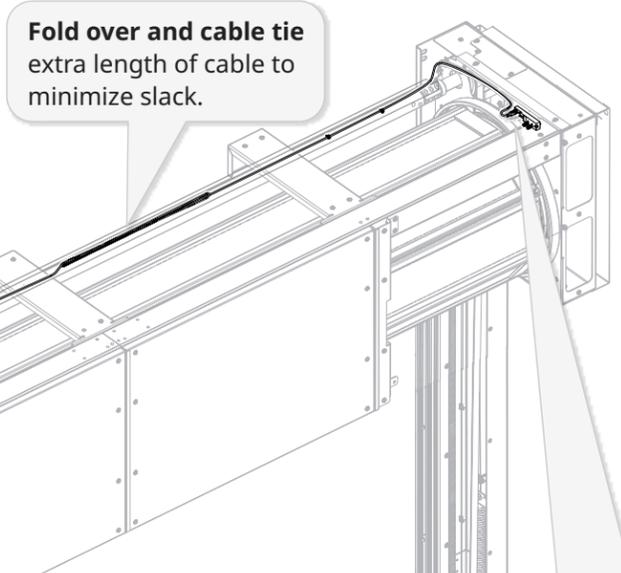
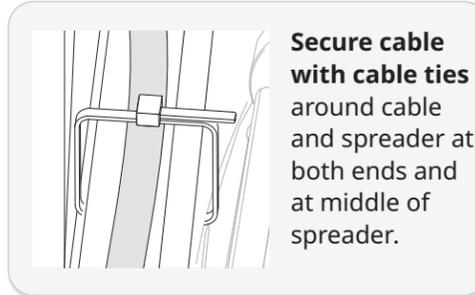


**6** **Connect** the male M12 connector for the short cable to the CAN repeater in the head assembly

**Run** the cable through the raceway from the side column to the head assembly. Use existing  **cable ties** or place new cable ties to keep the cable close to the side of the console.

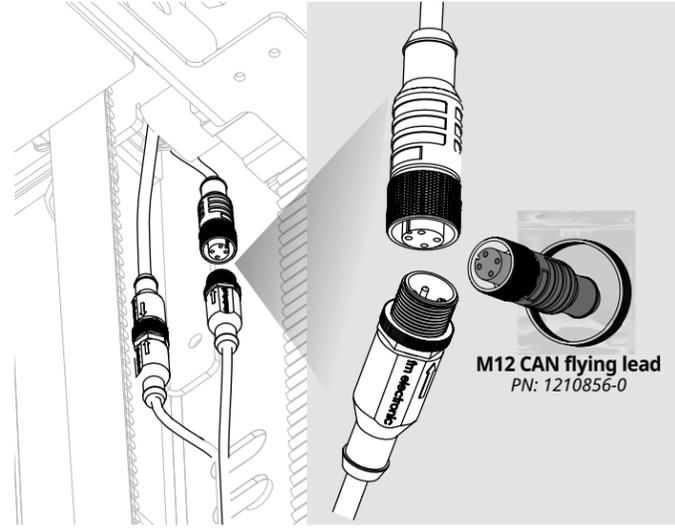


**7** Get the longer 1210855-0X M12 cable. This cable connects the CAN bus cabling **across the rear spreader**.



**8**

Get the flying lead cable to the controller.  
**Connect to the male M12 plug** in the non-drive side side column.  
**Run** the cable up the raceway



**9**

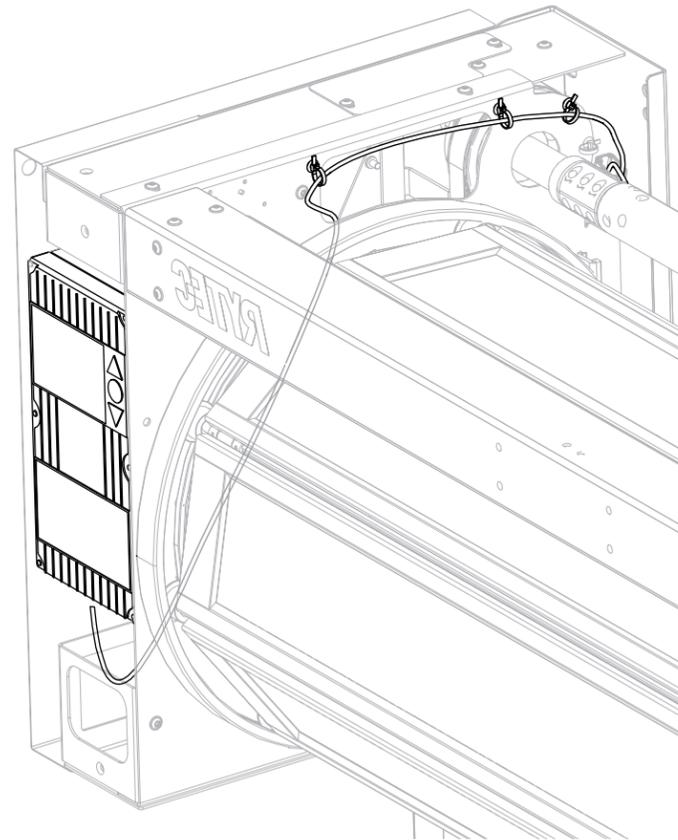
**Run** cable along inside of the non-drive side console, through the access port, to the controller.  
**Add cable ties** as shown here or use existing ties.  
**Run** the cable into controller through one of the cable glands used by the light curtain/Pathwatch cables that were discarded.

**IMPORTANT**

If there is extra length of cable, **coil it OUTSIDE of the controller.**



Cable ties



**OPTIONAL: connect the BTA4 user terminal to the CAN bus system**

**1**

Connect the BTA4 to the CAN bus system.

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

**Side column mounting:**  
**Place anchors** 6" below BTA4 access hole, 6" above CAN bracket, and half-way in between.  
 Wipe surface with supplied alcohol wipes before applying anchors.  
 Route cable through anchors and upper notch in bracket.

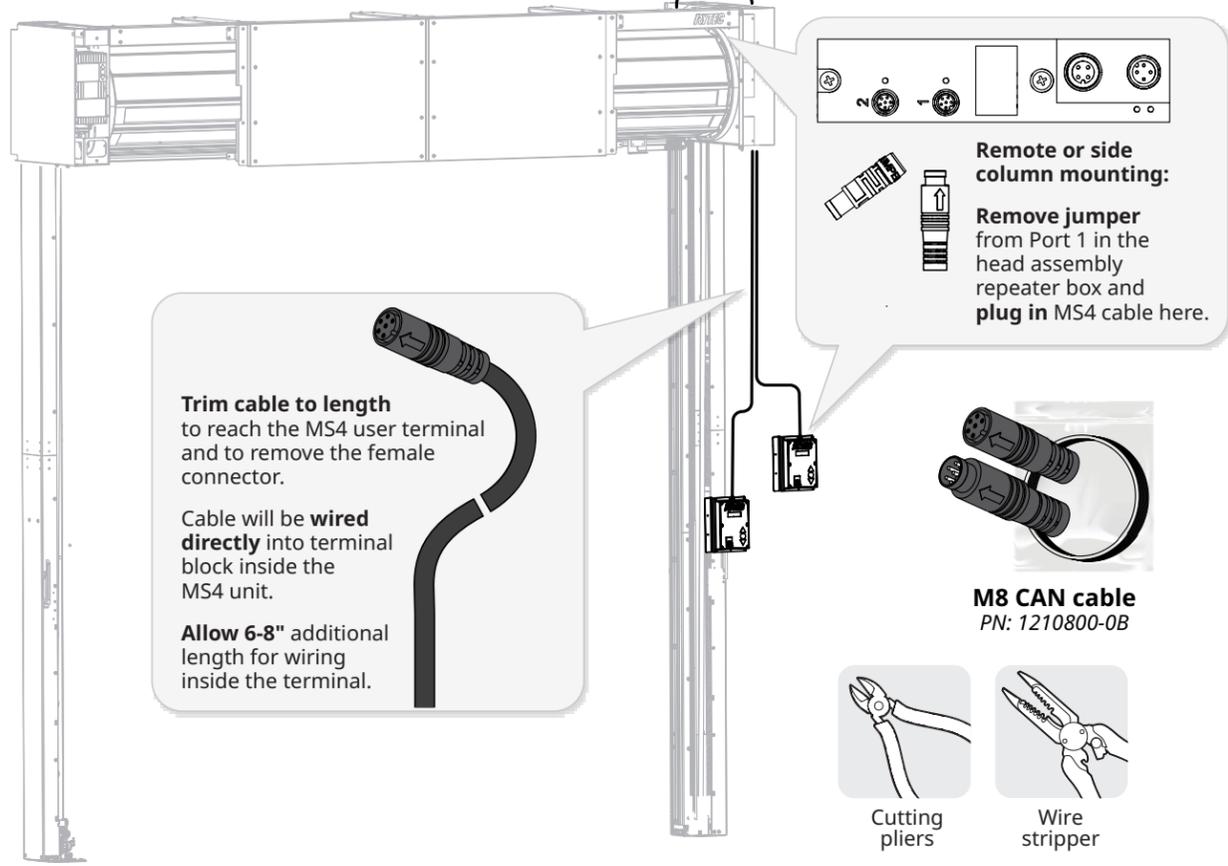
**Remote mounting:**  
**Remove jumper** from Port 1 in the head assembly repeater box and **plug in BTA4 cable** here.

**Plug in cable, then BTA4 terminal** snaps into frame.

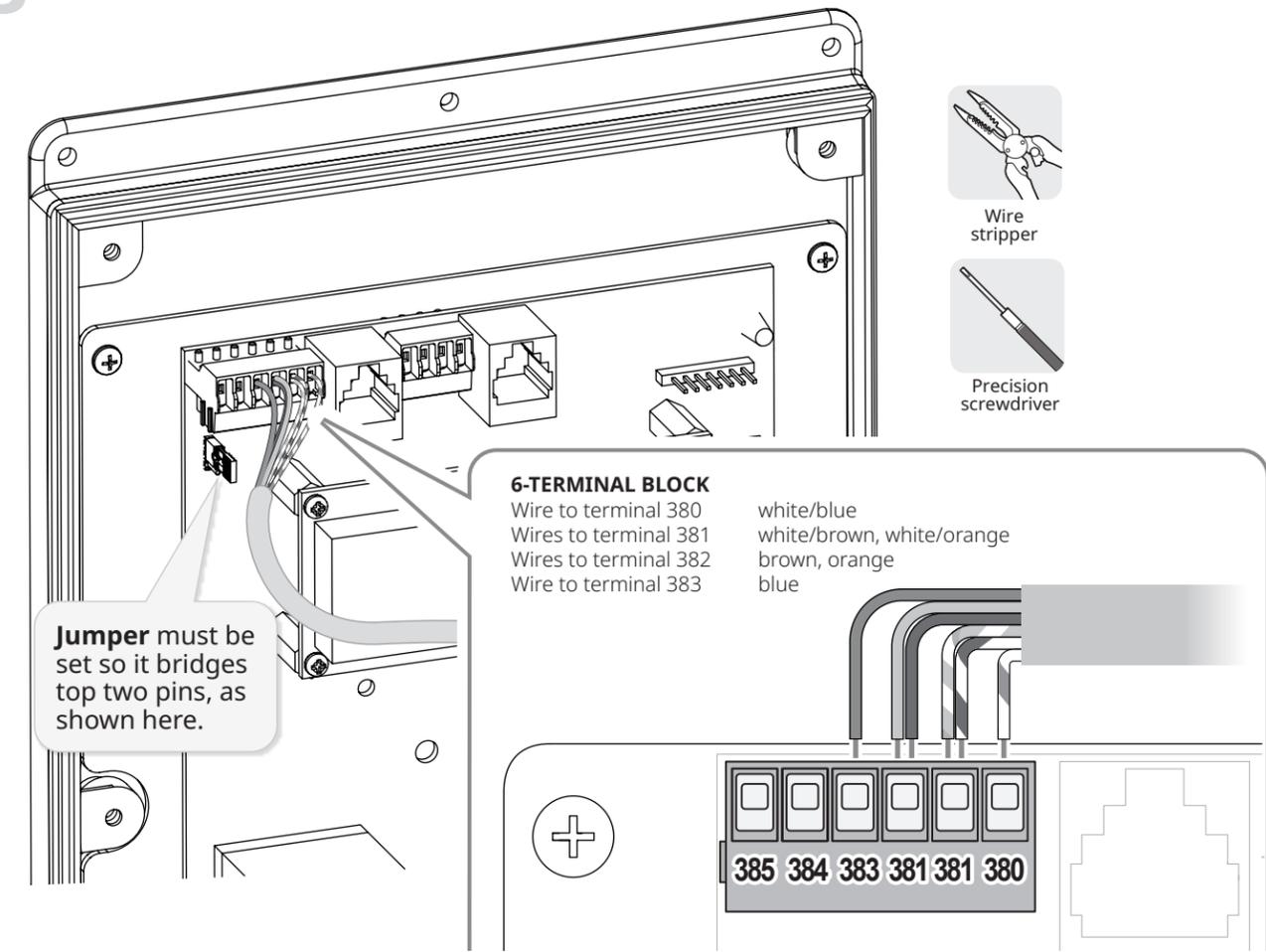
**M8 CAN cable**  
 PN: 1210800-0B  
 short for side column mounting or long for remote mounting

**OPTIONAL: connect the MS4 user terminal to the CAN bus system**

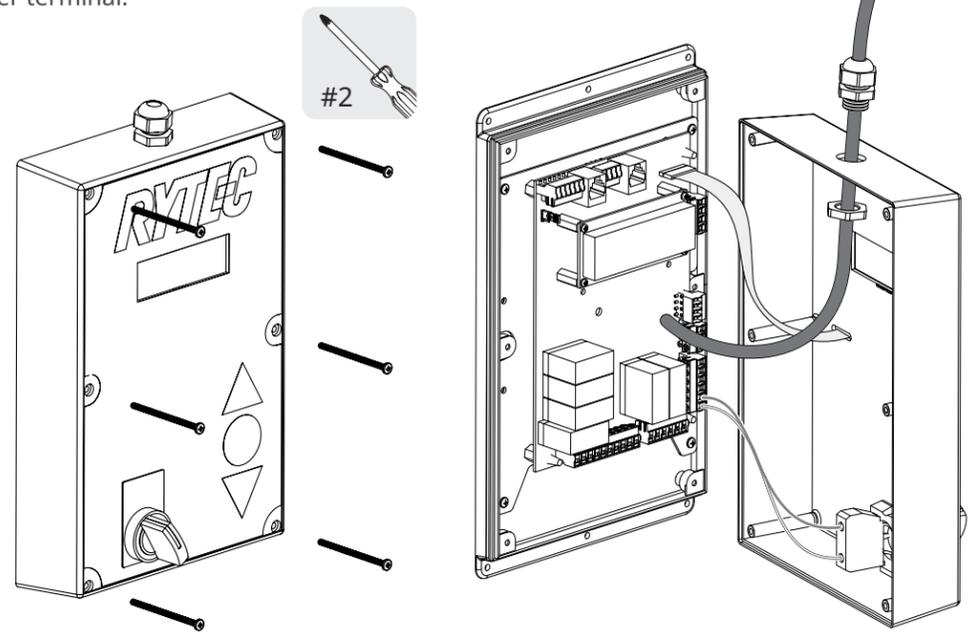
**1** Connect the M8 flying lead cable to the head assembly repeater box and **route** it to the MS4 user terminal.



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



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

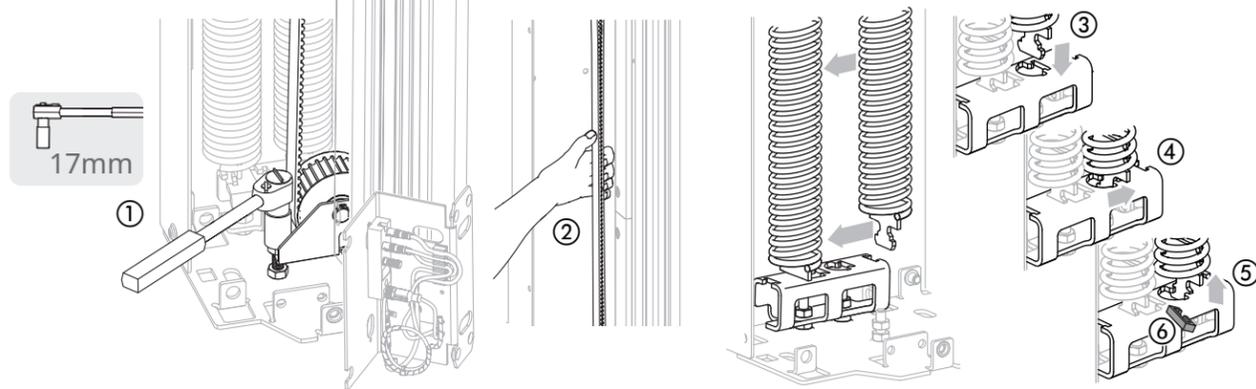


**4** Tighten the cord grip, **replace** the cover and **reinstall** the six screws.

## How to finish the installation

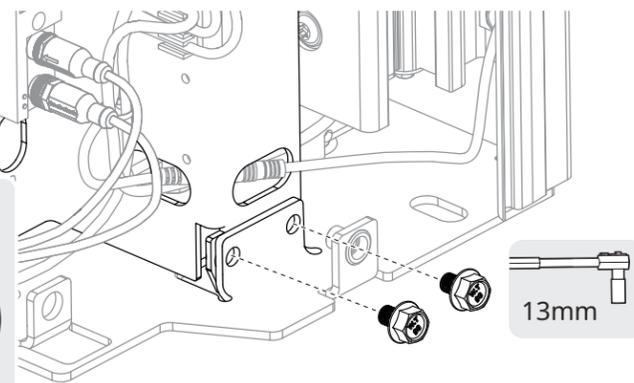
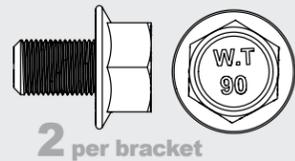
**1** **Reset** the tension on the secondary drive belt and, if necessary, **reinstall** the spring.

- 1: Tighten the top front nut to increase the tension a.
- 2: Press the front and rear legs of the belt together to test tension. Adjust the height of the top nut as needed until it requires considerable effort to manually bring the two legs of the belt together b.
- 3: **Push down** on the bottom of the spring, **slide** the spring tab into the wide slot ③ and through the narrow slot ④, then **push up** to set it into the retaining slot ⑤. **If door has tab collars ⑥**, reinstall.



**2** **Secure** CAN brackets in place

**FROM KIT**  
Hardware shown actual size



**3**

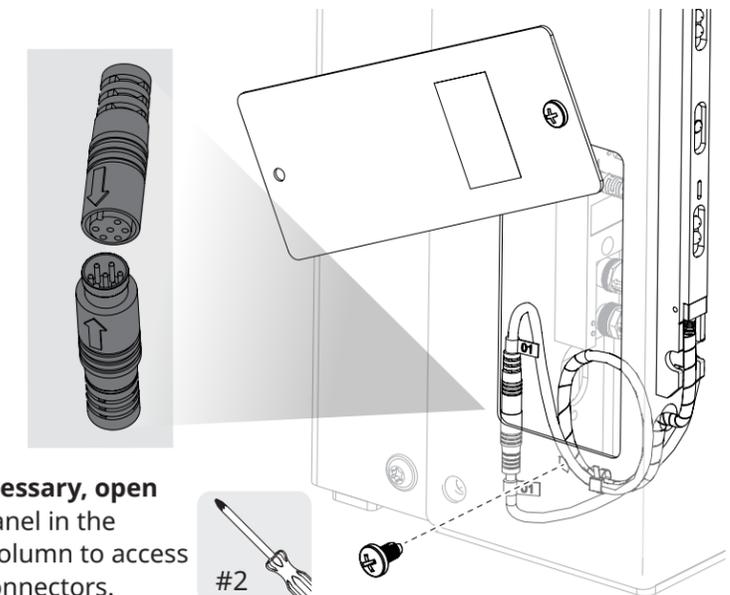
**Reinstall** the side column covers.

**INSIDER'S TIP**

- **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.

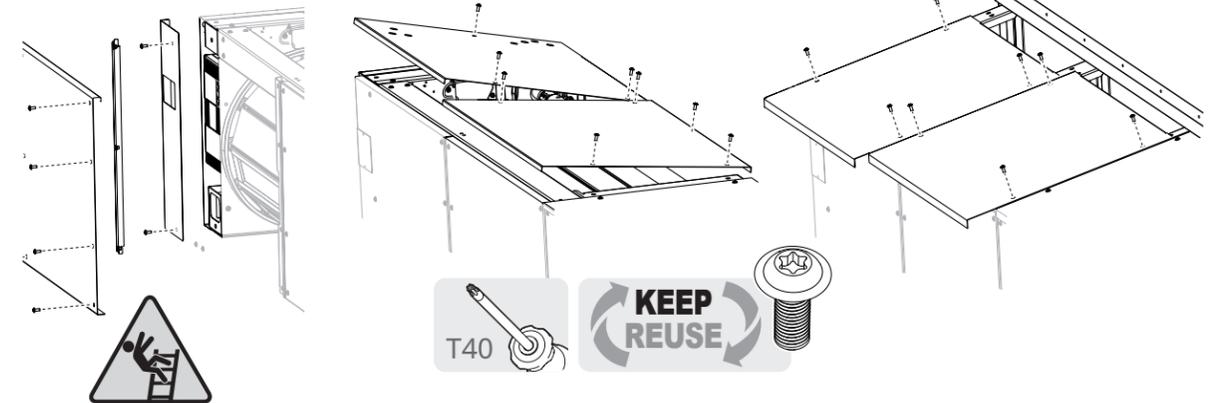


**4**

**Replace** all panels when the testing of the door is complete.

**Flat hood cover**

**Slanted hood cover**



## How to wire the CAN bus cable to the controller



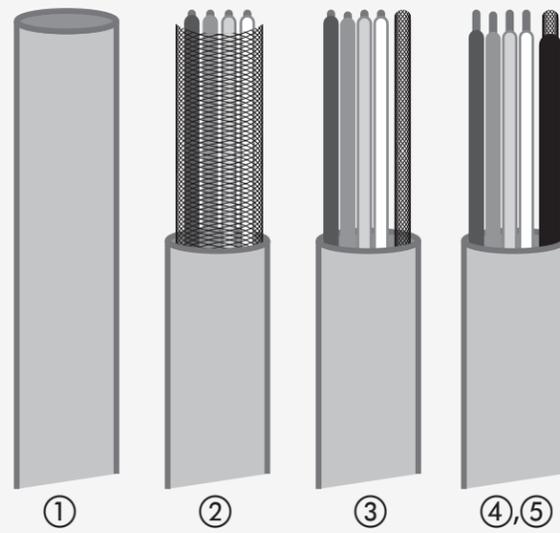
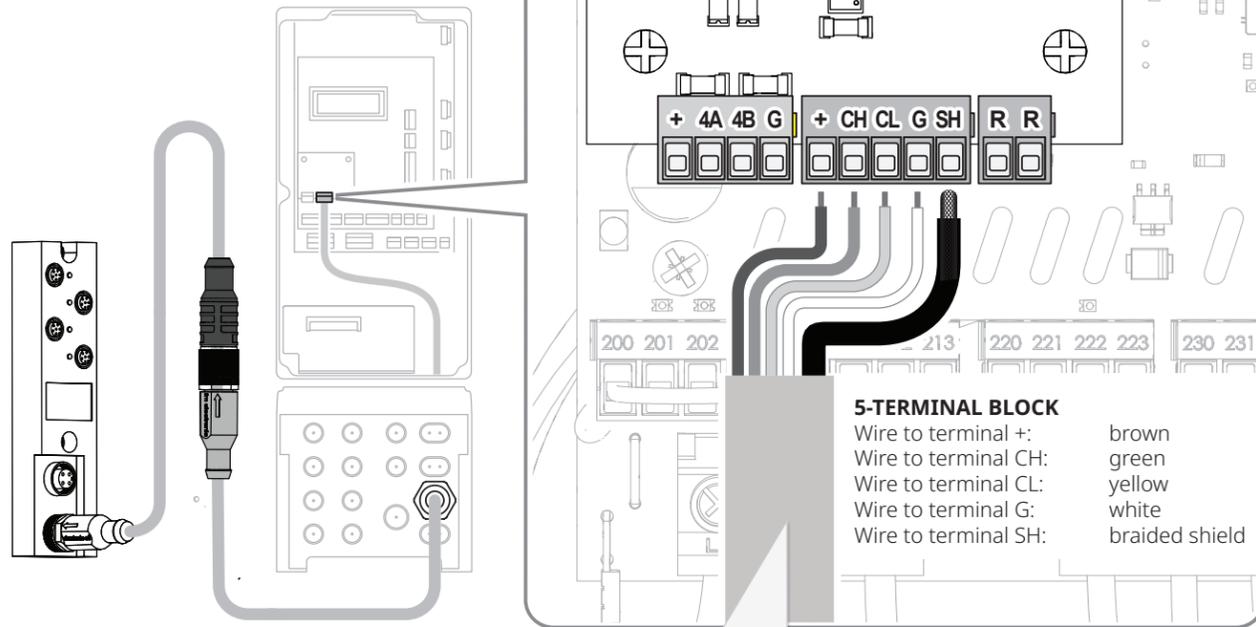
### ⚠ WARNING

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.

- 1** Connect the CAN bus wiring.  
**Shielding:** wire mesh  
**Gauge:** 20 AWG



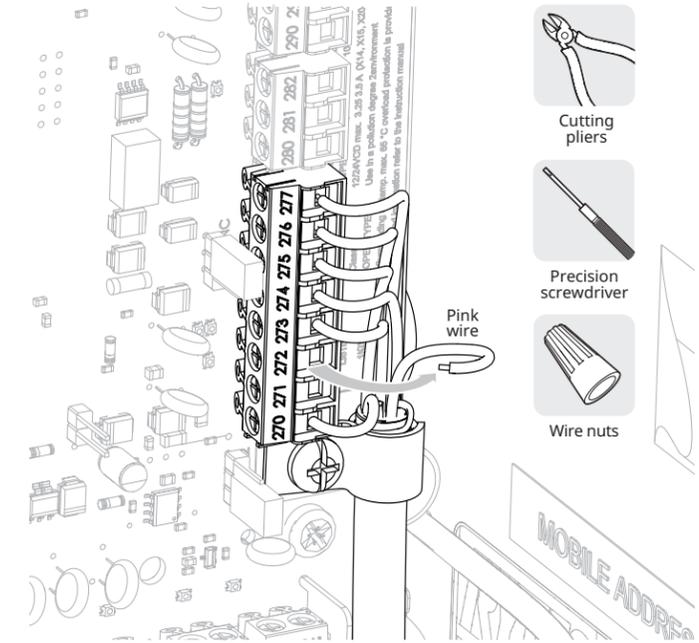
Heat shrink tubing  
from kit

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

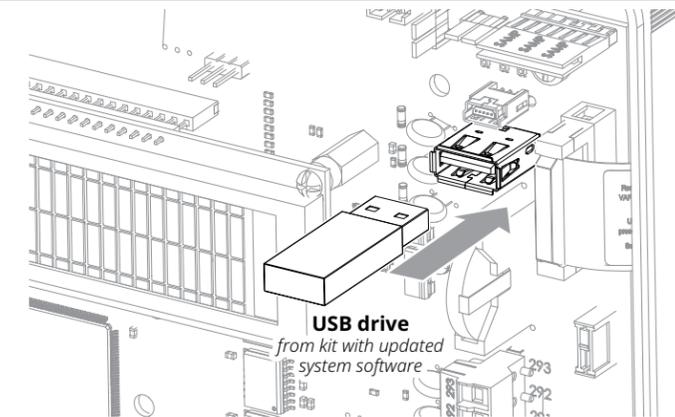
To ensure a tight contact:

- 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 sheilding.
- 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 from kit 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.

- 2** Disable the reversing edge.  
**Remove** the pink wire from terminal 272  
**Trim** the pink wire  
**Terminate** the pink wire with at a wire nut.



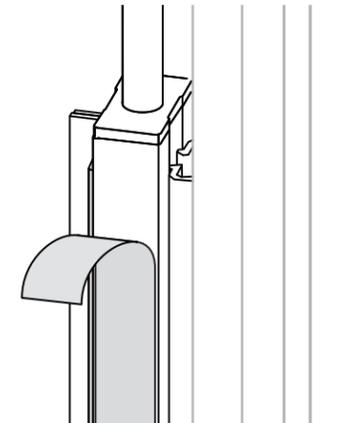
- 3** Get the USB drive with the updated system software from the kit.  
**Plug in** the drive to the USB port in the controller. If there is a drive already in place, remove it.  
**Close and secure** the front cover of the control box.



- 4** **IMPORTANT** **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.



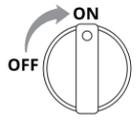
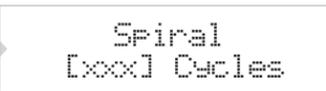
**Inform the door owner** that Rain-X® 620036 Plastic Treatment applied to the light curtains reduces static and helps keep them clear of dirt and dust. Available at most hardware stores.



- 5** **Restore** power to the door.

# How to update the system software, sync the SmartSurround™ system to the controller and set limits

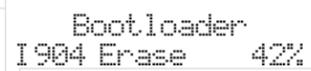
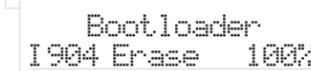
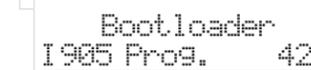
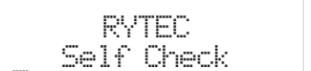
## First: set the controller to Parameter mode and access Service level parameters

Do This	Result
<p><b>1</b>  Turn on power to controller. The door starts in run mode.</p>	
<p><b>2</b>  until the parameter screen displays  You are in Parameter mode. Go to parameter 999.</p>	
<p><b>3</b>  2X to reach parameter P:999 </p> <p>The Password screen displays.</p>	
<p><b>4</b>  1X to move cursor to the right (edit value)  You can now change the value of parameter P:999.</p>	

Do This	Result
<p><b>5</b>  16X to set value to hexadecimal 10  Set the value to 10 (Service level password).</p>	
<p><b>6</b>  until question mark changes to checkmark (value saved)  The Service level password is saved.</p>	
<p><b>7</b>  1X to move cursor to left (parameters) </p> <p>You can now go to parameter P:989 to update the system software.</p>	

## Next: update the system software

Do This	Result
<p><b>1</b>  until you reach parameter P:989 </p>	
<p><b>2</b>  1X to go to the value side  <b>NOTE: the cursor may not respond immediately</b> when you press the RESET button. It can take up to several minutes for the USB drive to be recognized by the controller.</p>	
<p><b>3</b>  until the software version displays  The software update file name scrolls. Example: TST FUR3-RY V02-03.XX.bin</p>	

Do This	Result
<p><b>4</b>  until download begins </p>	<p>blinking dot indicates software is downloading, then</p>      <p>when update is complete, door returns to run mode</p>  <p>then controller displays an F:964 error you may also see an F:910 hardware error or an SPI:915 error for a few seconds before the F:964 error displays</p> <p><b>THIS IS NORMAL</b></p> 

**Next: go back parameter mode and re-enter the passcode for Service level access**

**1** *Do This* until the parameter screen displays *Result*

*Result*: P: Password 0  
001= [xxx] Cvc

You are in Parameter mode.

**2** *Do This* 2X to reach parameter P:999 *Result*

*Result*: P: Password 0  
999= 0000 #

The Password parameter P:999 screen displays.

**3** *Do This* 1X to move cursor to the right (edit value) *Result*

*Result*: P: Password 0  
999= 0000v#

You can now change the value of parameter P:999.

**4** *Do This* 16X to set value to hexadecimal 10 *Result*

*Result*: P: Password 0  
999= 0010?#

Set the value to 10 (Service level password).

**5** *Do This* until question mark changes to checkmark (value saved) *Result*

*Result*: P: Password S  
999= 0010v#

The Service level password is saved.

**6** *Do This* The controller automatically moves to parameter P:990. *Result*

*Result*: P: Defaults  
990= 0 #

**Next: reset defaults and parameter for the new system software**

**1** *Do This* 1X to move cursor to the right (edit value) *Result*

*Result*: P: Defaults  
990= 0v#

**2** *Do This* 1X to set the value to 1 *Result*

*Result*: P: Defaults  
990= 1?#

This is the value to reset the system defaults.

**3** *Do This* until question mark changes to checkmark (value saved) *Result*

*Result*: P: Defaults  
990= 1v#

**4** *Do This* The controller resets the factory defaults. *Result*

*Result*: Factory Default

when reset is complete, the controller goes to parameter P:991

*Result*: P: Defaults  
991= - #

**5** *Do This* 1X to move cursor to the right (edit value) *Result*

*Result*: P: Defaults  
991= 1v#

This is the **profile (door model)** number you recorded earlier.

**6** *Do This* until you set the value back to the original value *Result*

*Result*: P: Defaults  
991= 44?#

**7** *Do This* until question mark changes to checkmark (value saved) *Result*

*Result*: P: Defaults  
991= 44v#

This is the value to reset the system defaults.

**8** *Do This* The controller resets the factory defaults. *Result*

*Result*: Factory Default

when reset is complete, the controller goes to parameter P:000 or P:001

*Result*: P: Door Cycles S  
000# [xxx] Cvc

**The next steps vary based on the configuration of the door:**

- Most doors have **additional custom parameter settings** that must be reset.
- One or more files to update these parameters** are included on the disk. You do this at parameter P:944.
- They are numbered 0001, 0002, etc. **Each file must be downloaded separately.**

**9** *Do This* until you reach parameter P:944 *Result*

*Result*: P: Para.<- USB S  
944= 0 #

**10** *Do This* 1X to move cursor to the right (edit value) *Result*

*Result*: P: Para.<- USB S  
944= 0v#

**11** *Do This* 3X to go to the first file *Result*

*Result*: P: Para.<- USB S  
944= 0001?#

- You pass by values 1 and 2 before you reach the first file. **These values are not involved in this process.**
- If there are no parameter files**, you won't be able to scroll past the value of 2. Go to step 19.

**12** *Do This* until blinking dot displays *Result*

*Result*: P: Para.<- USB S  
944= .

blinking dot indicates software is downloading, then

*Result*: P: Para.<- USB S  
944= 0001v#

checkmark indicates download is complete

**13** *Do This* 1X to go to the next file *Result*

*Result*: P: Para.<- USB S  
944= 0002?#

- If there are more files, **repeat the process until all files have been downloaded.**
- If there are no more parameter files**, the download is complete. Exit the parameter.

**14** *Do This* 1X to move cursor to left (parameters) *Result*

*Result*: P: Para.<- USB S  
944= 0001 #

**Next: activate the SmartSurround™ system synchronization**

**IMPORTANT**

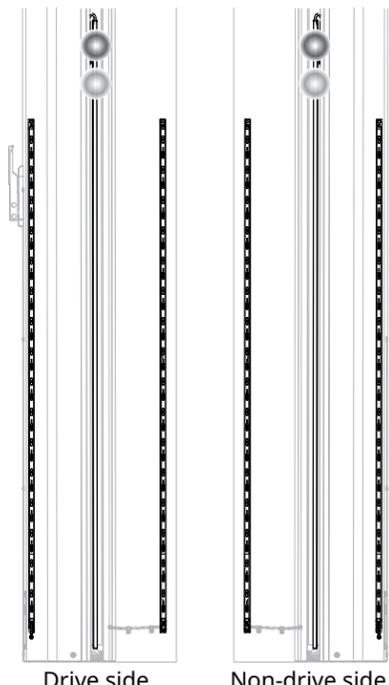
If you assign the wrong light curtains to parameters L:201, L:401 or L:501, return to parameter A:060, set the value to 0, save that value, then start again at Step 2.

Do This	Result
1  until you reach parameter A:060	A: AFFF03 060= 0 # S
2  1X to move cursor to the right (edit value)	A: AFFF03 060= 0v# S
3  4X to set the value to 4  ■ This value activates the SmartSurround® and Advanced³ light curtains	A: AFFF03 060= 4?# S

Do This	Result
4  to save the value	A: AFFF03 060= 4v# S  the controller resets the defaults  Factory Default  then returns to parameter A:060  A: AFFF03 060= 4v# S
5  1X to move cursor to left (parameters)	L: SAI Slot2 201= - #  the controller automatically goes to parameter L:201

**Next: 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.

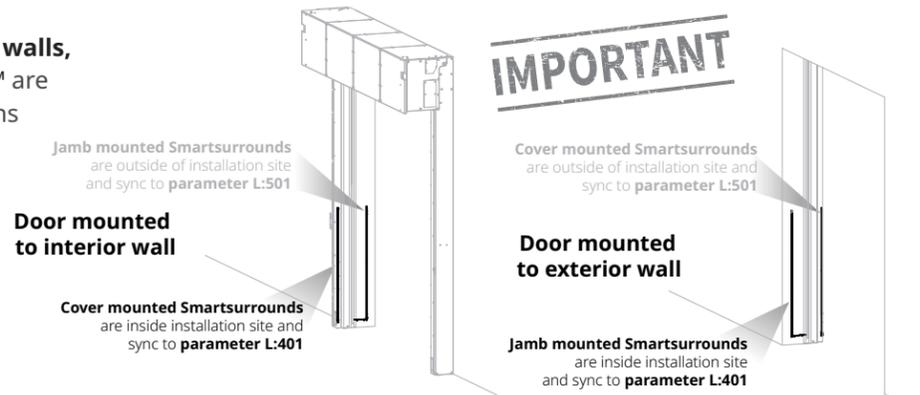
Do This	Result
1  1X to show the first set of light curtains	L: SAI Slot2 201= 0932-9156?
2 Check the Advanced³ light curtains mounted in the door tracks of both side columns. <ul style="list-style-type: none"> <li>▪ If all four LEDs are flashing (transmitter: green and yellow, receiver: blue and red), the door track light curtains are synced correctly.</li> <li>▪ If other light curtains light up, go to the next value.</li> </ul> 	

Do This	Result
3  1X to show the next set of light curtains  Re-check the light curtains.	L: SAI Slot2 201= 0948-9147?
4  until the setting is saved	L: SAI Slot2 201= 0948-9147v
5  until the setting is saved	L: SAI Slot2 201= 0948-9147v
6 The controller moves to parameter L:401.	L: SAI Slot4 401= - #

**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.

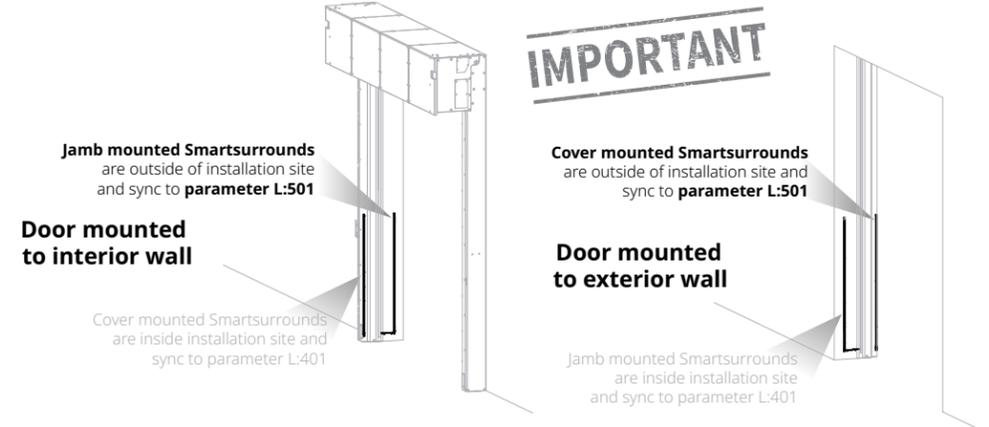
On doors that are mounted to **exterior walls**, the **jamb mounted SmartSurrounds™** are considered to be the inside light curtains and are assigned to parameter L:401.



**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
<p>1  1X to show the first set of light curtains</p>	
<p>2 Check the SmartSurround™ inside light curtains on both side columns.</p> <ul style="list-style-type: none"> <li>If all LEDs are flashing, the cover mounted light curtains are synced correctly.</li> <li>If other light curtains light up, go to the next value.</li> </ul> <p>Drive side      Non-drive side</p>	
<p>3  1X to show the next set of light curtains</p>	
<p>4  until the setting is saved</p>	
<p>5 The controller moves to parameter L:501.</p>	

Do This	Result
<p>1  1X to show the first set of light curtains</p>	
<p>2 Check the SmartSurround™ outside light curtains on both side columns.</p> <ul style="list-style-type: none"> <li>If all LEDs are flashing, the cover mounted light curtains are synced correctly.</li> <li>If other light curtains light up, go to the next value.</li> </ul> <p>Drive side      Non-drive side</p>	
<p>3  1X to show the next set of light curtains</p>	
<p>4  until the setting is saved</p>	
<p>5 The controller ends at parameter P:000.</p>	

**To finish: set limits**

*Do This*      *Result*

**1**  until the "Synchron." screen displays

**! Synchron. !**  
**\_0 Press Reset**

Scrolling message:  
Hold Reset button if position OK

**2**  **1X** to start sequence

**→ To Open Pos.**  
**\_0 Hold Reset**

Scrolling message:  
Hold Reset button if position OK

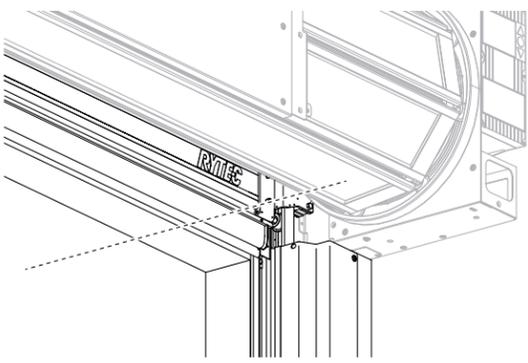
**3** **Set the open position.**

 until open height is correct

**→ To Open Pos.**  
**\_0 Hold Reset**

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



*Do This*      *Result*

**4**  until "Open Limit Set" screen displays

**Open Limit Set**  
**\_0**

when quality check is complete, you see these screens:

**LGx Qual. Check**  
**\_0**

**! Synchron. !**  
**\_0 Press Close**

Scrolling message:  
Press Close button to begin

**5**  **1X** to start. The door panel closes.

**Search Edge**  
**-1330\_Auto Close**

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

**!Auto Calibrate!**  
**Press Open butto**

**6**  **1X** to start auto-calibration

**Door Is Opening**  
**Act11 = 4Sec**

**Door Is Closing**  
**Act11 = 4Sec**

**Spiral LH**  
**[xxx] Cycles**

- The door opens and closes automatically **up to 12 times.**
- The controller automatically sets the close limit position while the door calibrates.
- When calibration is complete, the door switches to Run mode.

**IMPORTANT** **The door may not open or close completely** during automatic calibration. This is normal. When calibration is complete, the door will open and close correctly.

- You can manually adjust the close limit after calibration is complete by changing parameter P:275. See next page

**If necessary, manually adjust the close limit**

*Do This*      *Result*

**1**  until the parameter screen displays

**P: Password**      **0**  
**001= [xxx] Cyc**

You are in Parameter mode.

**2**  until parameter displays

**P: Incremental S**  
**275=**      **-12 Inc**

The default value at P:275 is -12.

**3**  **1X** to move cursor to the right (edit value)

**P: Incremental S**  
**275=**      **-12 Inc**

You can now change the value.

- **The UP arrow** increases the value and raises the close limit position for the door.
- **The Down arrow** decreases the value and lowers the close limit for the door.
- Each press of an arrow changes the limit by a fraction of an inch, which gives you precise control of the value.

*Do This*      *Result*

**4**  until new value displays

**P: Incremental S**  
**275=**      **[x]?Inc**

**IMPORTANT** Do not change the value by more than 5 increments. Then test the door.

**5**  until question mark changes to checkmark (value saved)

**P: Incremental S**  
**275=**      **[x] Inc**

The new value is saved.

**6**  **1X** to move cursor to left (parameters)

**P: Incremental S**  
**275=**      **[x] Inc**

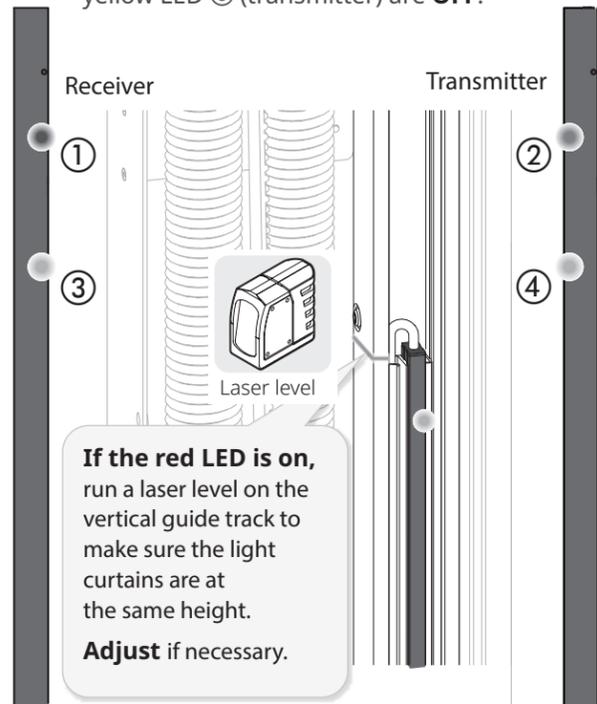
**7**  until door returns to run mode

**Spiral**  
**[xxx] Cycles**

## How to test the door

- 1 Make sure** the blue LED ① (receiver) and green LED ② (transmitter) on the Advanced<sup>3</sup> light curtains are flashing once every two second, and that the red LED ③ (receiver) and yellow LED ④ (transmitter) are **OFF**.

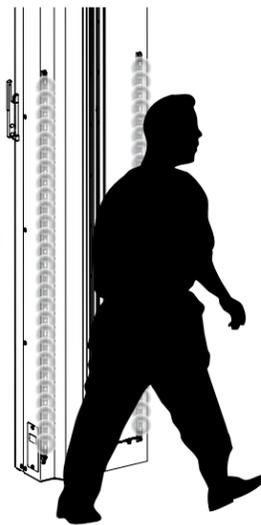


**If the red light and yellow lights are on,** or if you see a different combination of lights, call Rytec technical support at **800-628-1909**.

- 2 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.

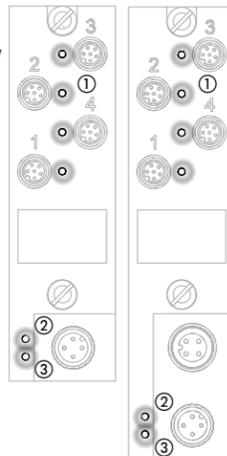
- 3 Test the SmartSurround™ system:**

- **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.



- 4 LEDs on the CAN repeaters and distributor indicate if the system is working correctly**

- ① **LEDs next to the ports (blue)** should be ON steadily (no flashing).
- ② **The CAN status LED (yellow)** should be flashing one to four times per second.
- ③ **The power status LED (green)** should be ON steadily (no flashing).



**Contact technical support** if you do not see this.

## OPTIONAL: How to enable the reversing edge on Spiral doors

The SmartSurround™ system, in combination with the Advanced<sup>3</sup> 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. The reversing edge system is disabled as part of the retrofit.

The reversing edge system can be reenabled if a full height sensing system is required.



- **This procedure requires Rytec Level access to change the parameters.** To get the passcode for Rytec Level access, you must lock the cycle count, then contact Rytec technical support for a passcode.
- **The passcode changes if the cycle count changes, so make sure** the door does not open or close until you have used the passcode and gained access.

### First: Connect the pink wire to terminal 272 in the controller

**⚠ WARNING**

**Set the fused disconnect to the OFF position** and perform a lockout/tagout of the high-voltage disconnect before opening the control box. Do not set the disconnect switch to the ON position until told to do so by these instructions.

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

**1 Open** the controller, **remove** the wire nut from the pink wire, and **connect** it to terminal 272.

#2

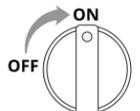
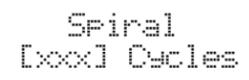
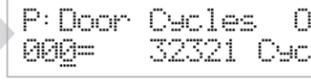
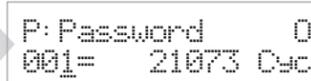
Pink wire

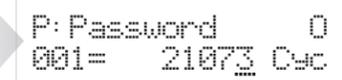
Precision screwdriver

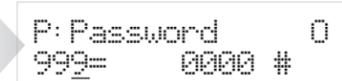
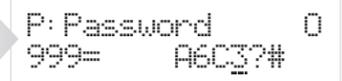
Wire nuts

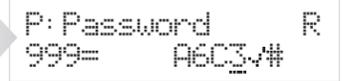
**2 Restore** power to the door.

**Next: set the controller to Parameter mode and lock the cycle count**

Do This	Result
<p><b>1</b>  Turn on power to controller The door starts in run mode.</p>	
<p><b>2</b>  until the parameter screen displays</p>  <p><b>if you don't start at parameter P:001</b></p> <p><b>1X</b> to reach parameter P:001</p>  <p>The cycle count at parameter P:001 is <b>from the last time it was locked</b>, so it may not match the current count for the door.</p>	

Do This	Result
<p><b>3</b>  1X to move cursor to the right (edit value)</p> 	
<p><b>4</b>  until the cycle count updates and the check mark appears</p>  <p><b>IMPORTANT</b></p> <p>Once the cycle count is locked, <b>make sure</b> the door does not open or close until you have received and entered the passcode.</p>	

Do This	Result
<p><b>3</b>  2X to reach parameter P:999</p> 	
<p><b>4</b>  1X to move cursor to the right (edit value)</p> 	
<p><b>5</b>  until you reach the value of the Rytec passcode</p> 	

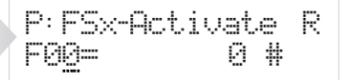
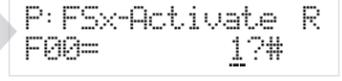
Do This	Result
<p><b>6</b>  until question mark changes to checkmark (value saved)</p>  <p>The "R" in the top right corner indicates you have Rytec level access</p>	
<p><b>7</b>  1X to move cursor to left (parameters)</p> 	

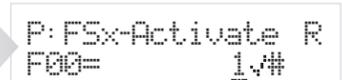
**Next: get and enter the passcode**

<p><b>1</b> Contact Rytec technical support by phone or e-mail:</p> <ul style="list-style-type: none"> <li>• 800-628-1909</li> <li>• support@rytectdoors.com</li> </ul> <p>Be prepared to tell them the <b>cycle count</b> and the <b>reason you need</b> Rytec level access. Reference the <b>approval you have already submitted</b>.</p>
<p><b>2</b>  The Rytec level passcode is a hexadecimal number. This means it uses the ten numeric characters (0-9), plus six letters (A-F), which represent the values from 10 through 15. It also means the passcode is a large number. For example a passcode of A6C3 equates to a value of 42,691.</p>

**Next: go to parameters P:F00, P:F07, and P:460 and set the values**

**NOTE:** if the door has an **energy chain instead of a wireless system**, skip to step 11.

Do This	Result
<p><b>1</b>  until you reach parameter P:F00</p> 	
<p><b>2</b>  1X to move cursor to the right (edit value)</p> 	
<p><b>3</b>  1X to change the value to 1</p> 	

Do This	Result
<p><b>4</b>  until question mark changes to checkmark (value saved)</p> 	
<p><b>5</b>  1X to move cursor to left (parameters)</p> 	

Do This Result

**6**  until you reach parameter P:F07

- This is the **mobile unit address** that you recorded earlier.
- The software update restored the **ORIGINAL** address from when the door was purchased. This may or may not match the address for the **CURRENT** mobile unit.
- If the value displayed matches the value you recorded, go to step 11. Otherwise, change the value to the one you recorded using the following steps.

**7**  1X to move cursor to the right (edit value)

**8**  until you reset the value to the original value

- The mobile address is a large number; for example, this value is 87,1026. So it will take a while to reach it.
- The speed of the change increases the longer you hold down the UP arrow.

**9**  until question mark changes to checkmark (value saved)

**10**  1X to move cursor to left (parameters)

Do This Result

**11**  until you reach parameter P:460

**12**  1X to move cursor to the right (edit value)

**13**  1X to change the value to 1

**14**  until question mark changes to checkmark (value saved)

**15**  1X to move cursor to left (parameters)

**16**  until door returns to run mode