

# How to retrofit a Rytec Spiral® LH® door with the SmartSurround™ light curtains, Advanced³ light curtains and CAN bus cabling

Author: Sean C. Morrison

Date: 04/22

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



## Other icons used in this bulletin

<b>IMPORTANT</b>	Indicates instructions which, if not followed, could result in <b>damage to the door</b> or <b>voiding of the warranty</b> .	<b>INSIDER'S TIP</b>	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.

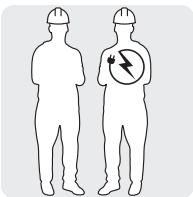
Get this manual on your device:



## 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



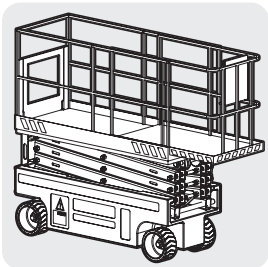
- Two service personnel are recommended.
- A licensed electrician is recommended for making all electrical connections

## Requirements – Lifts

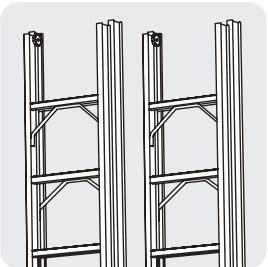
	<b>WARNING</b> <b>Follow all safety instructions</b> on all lifts and ladders used for this installation.
--	--

**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

Tools

Angle grinder or jig saw

Power drill with these drill bits

File

(2) Saw horses

(2) C-clamps

Laser level

Tape measure

Cement drill

(2) Vise grips

Cutting pliers

Chisel

Utility knife

Wire stripper

Precision screwdriver

Fish tape

#2 Phillips screwdriver

Flat head screwdriver

T40 Torx screwdriver

Socket or open wrench

Hex wrench

Supplies

Cabling

Cable ties and anchors

Electrical tape and wire nuts

Alcohol wipes

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

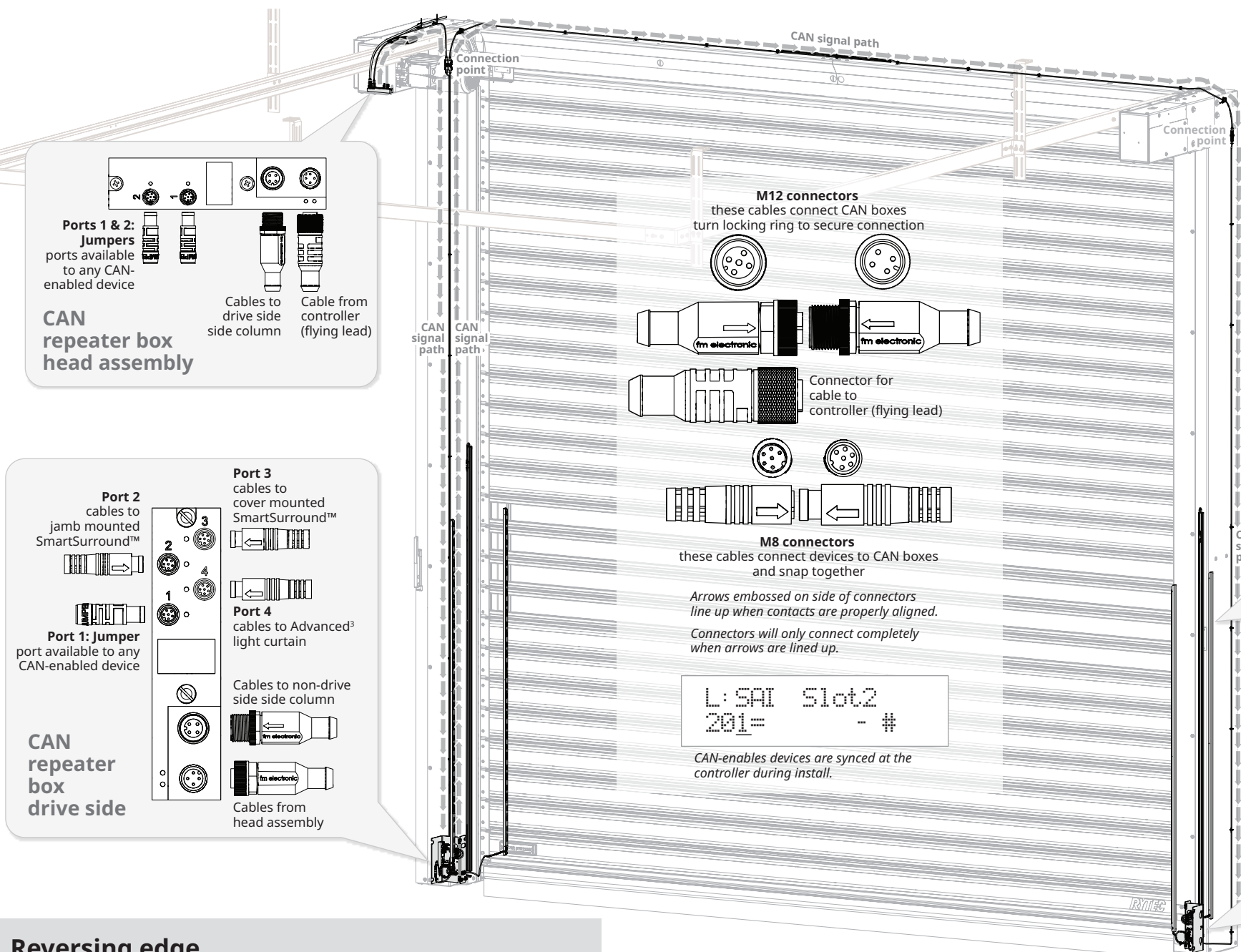
### SmartSurround™ light curtains

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 Advanced³ 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.

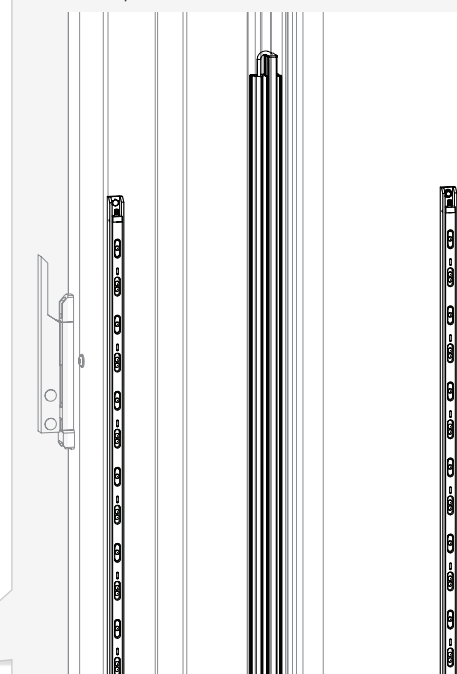
### CAN bus cabling

- 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.



### 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 Advanced³, is still located inside the door track.





Before you begin – five (5) 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); LH components shown here.

**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

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

**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  
(1 foot)

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

(2) M12 CAN cables  
PN: 1210855-0

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

**CAN port jumper**

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

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

**FEIG** TST LGDR-A190C LIGHT CURTAIN - TRANSMITTER  
40 Channels - 1940mm PL 9 Cat. 2 24VDC 50mA VOM 2021

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

**RYTEC** TST LGCAR-R165C SMARTSURROUND - RECEIVER  
16 - IR Channels 16 - Warning Light Spots Range ±12 m 24VDC IP 67 325 mA VOM 2021

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

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

**SmartSurround™ light curtain**  
Mounts to wall (jamb mounted)  
Mounting hardware:  
(2) cement screws and anchors or self-tapping screws

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

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

**BT44 user terminal (optional)**

**MS4 user terminal (optional)**

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

**FEIG** TST LGDR-A190C LIGHT CURTAIN - RECEIVER  
40 Channels - 1940mm PL 9 Cat. 2 24VDC 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 - IR Channels 16 - Warning Light Spots Range ±12 m 24VDC IP 67 325 mA VOM 2021

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

**SmartSurround™ light curtain**  
Mounts to wall (jamb mounted)  
Mounting hardware:  
(2) cement screws and anchors or self-tapping screws

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

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

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

**Controller**

**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 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**

## 2: Open the drive side console and check the cables connected to the junction box

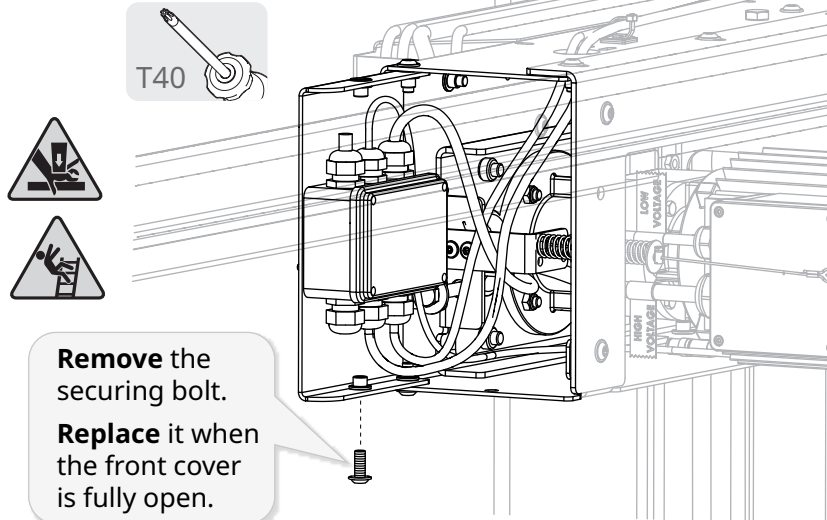
### IMPORTANT

All steps shown are for an **LH door (left-hand drive side)**. Reverse sides for a door where the motor is on the right side.

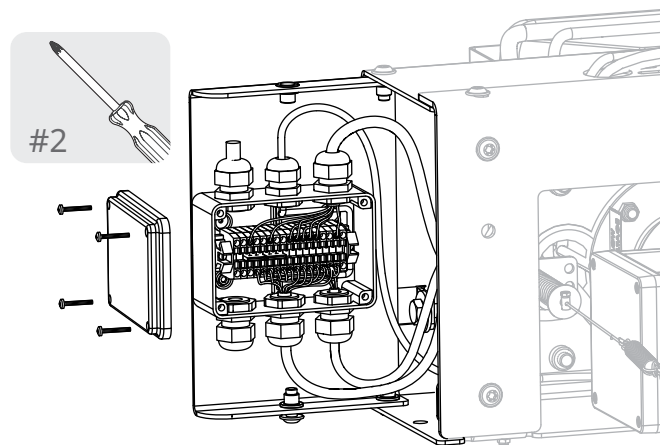
### 1 Open the front cover on the drive side console to locate the junction box.

#### IMPORTANT

- In a standard installation, there are four cables connected to the junction box: the cable from the proximity switch, the X10 cable to the controller, and two-four cables from the light curtains of photo eye.
- If additional accessories have been wired to the box, they will need to be rerouted directly to the controller.
- Call Rytec technical support at 800-628-1909 before continuing if you have any questions about how to do this. **Make sure** you have correct cabling to complete all wiring.



### 2 Loosen the four screws and remove the front cover.



### 3 Make sure the standard cables are wired to the box, and that no additional cables are present. If the cables are as shown below, continue to the next step. If there are additional cables, call technical support.

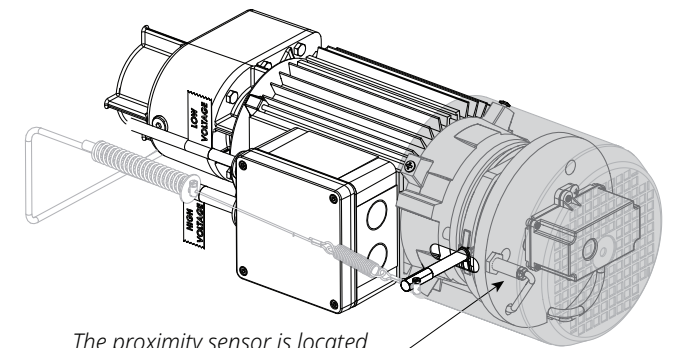
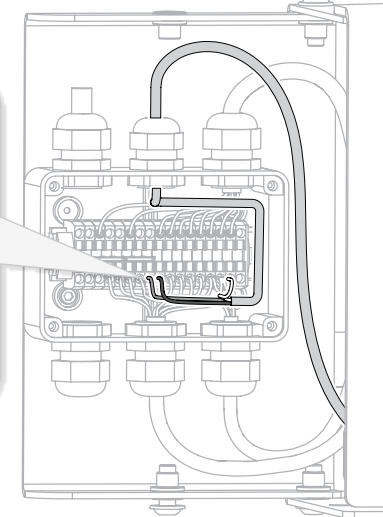
Standard cables and what you do with them - do not make changes until instructed to do so later in this manual

#### Proximity sensor

Wire colors: blue, brown, black

#### This cable remains.

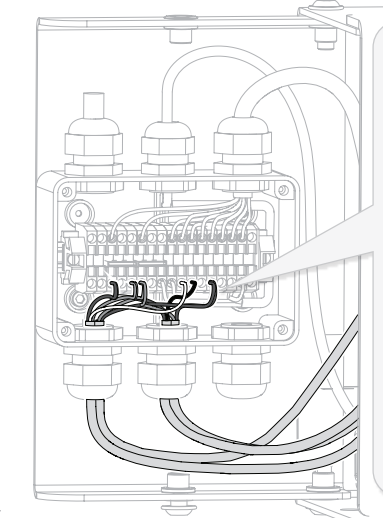
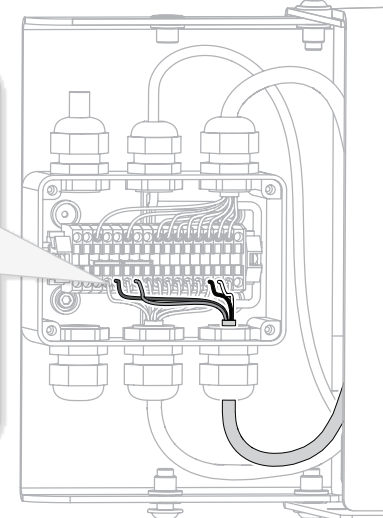
It will need to be spliced and wired directly to the controller.



#### Light curtain transmitter cable

Wire colors: brown, blue, black, white

On doors with light curtains, this cable should be removed, then **spliced to the proximity sensor cable** and run to the controller.



#### Photo eye cables

Wire colors: brown, blue, white, black

On doors with photo eyes, the front, rear or both sets may be wired to the junction box.

The photo eye cables are removed. Then **splice the longest cable** to the proximity sensor cable and run it to the controller.

#### X-10 cable

Wire colors: red, black, gray, orange, white, brown, blue, yellow, green, purple. Yellow and green may be terminated.

This cable should be used to fish the CAN bus cable and spliced proximity sensor cable through existing conduit.

### IMPORTANT

**Make sure** the X-10 cable runs through conduit to the controller. If it is not used, you will need to use a **different cable** to fish the new cables through the conduit.

Cabling configuration may vary, but all standard cables shown here should be wired to junction box.



3: 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

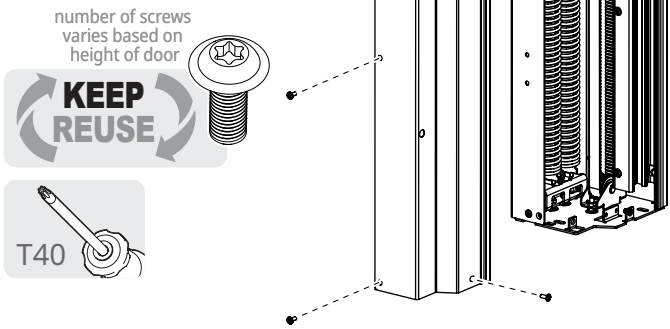
1

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

number of screws varies based on height of door

KEEP REUSE

T40



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

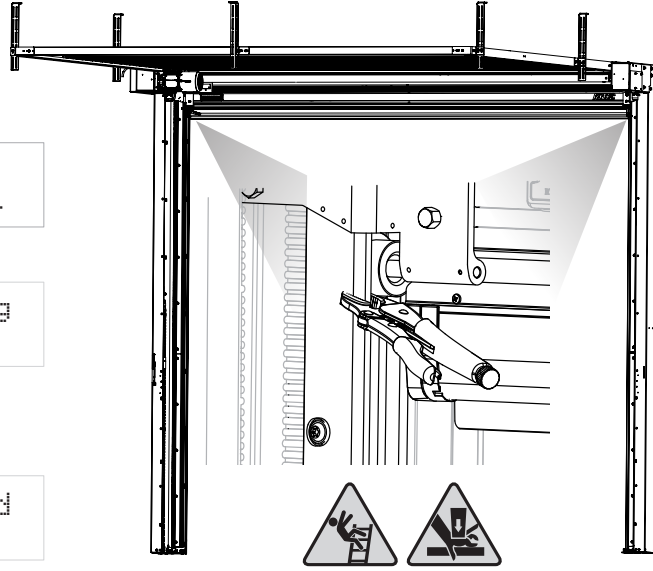
Spiral LH [xxx] Cycles

1X to open the door

Door Is Opening

1X to stop the door in the fully open position

Door Is Stopped



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

001= [xxx] Cxc

You are in Parameter mode.

Do This

Result

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.

Do This

Result

2

2X to reach parameter P:999

P: Password 0

999= 0000 #

The Password parameter P:999 screen displays.

Do This

Result

4

16X to set value to hexadecimal 10

P: Password 0

999= 0010-#

Set the value to 10 (Service level password).

Do This

Result

5

until question mark changes to checkmark (value saved)

P: Password S

999= 0010-#

The Service level password is saved.

Do This

Result

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.

Do This

Result

7

until you reach parameter P:991

P: Defaults S

991= 44-#

This is the **profile (door model)** of the door

Do This

Result

9

until you reach parameter P:F07

P: F5x-Address S

F07= D4A72 #

This is the **mobile address** for the mobile unit. It is a **hexadecimal number**, so it may contain alpha and numeric characters.

8

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

10

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

4: Check if the door has an MS4 or BTA4 user terminal already installed, and if it does, prep it to be retrofit

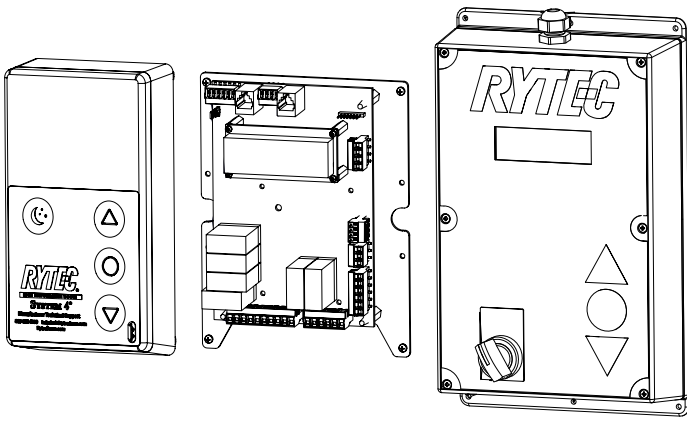
1

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.

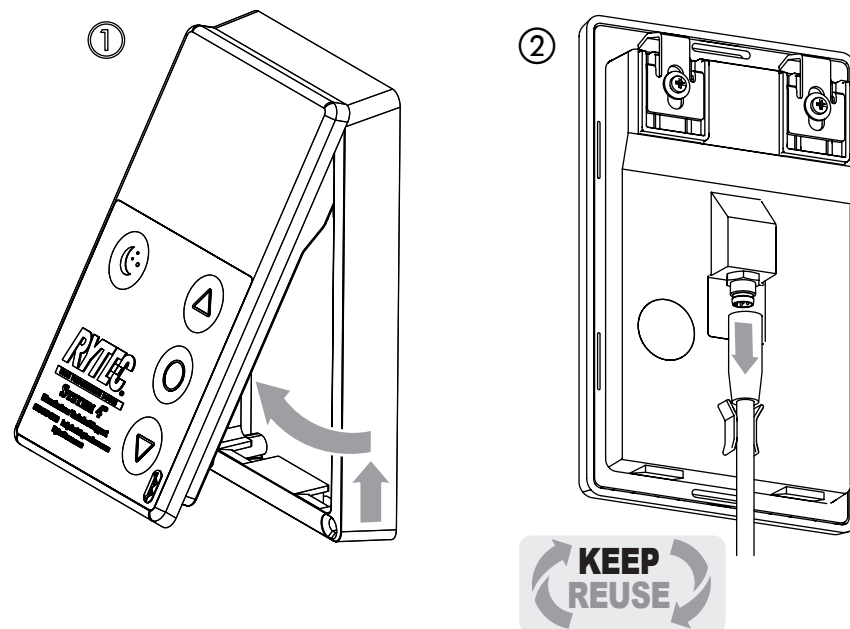
IMPORTANT



**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.

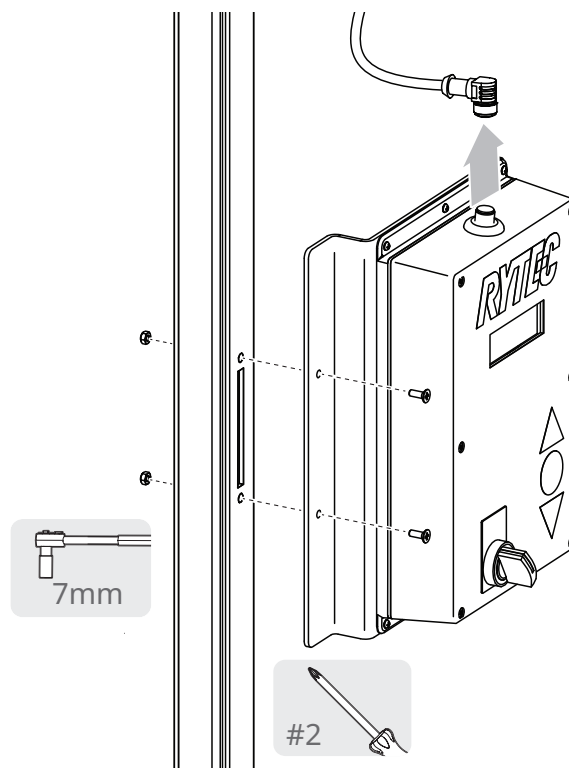
- The user terminal will be connected to the CAN bus later in this procedure.
- The cable will be removed later in this procedure.



**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 existing MS4 user terminal:**

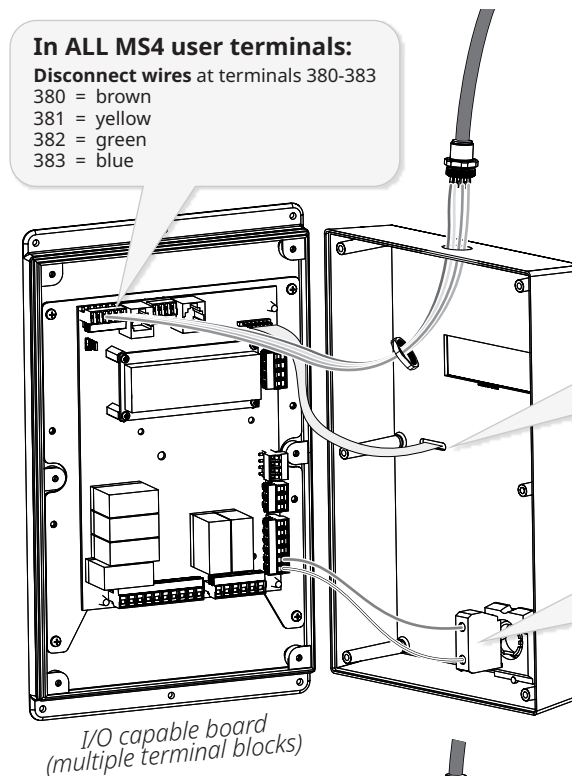
**Loosen** the six screws and remove the front cover.

**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:**

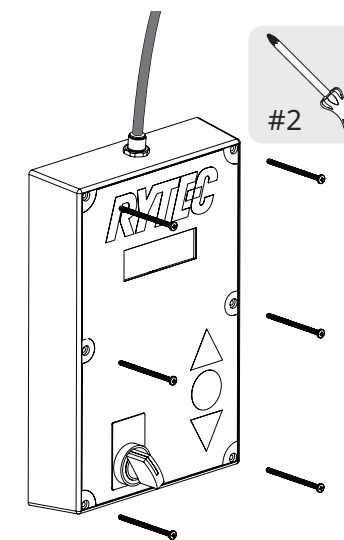
**Disconnect wires** at terminals 380-383  
380 = brown  
381 = yellow  
382 = green  
383 = blue



*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



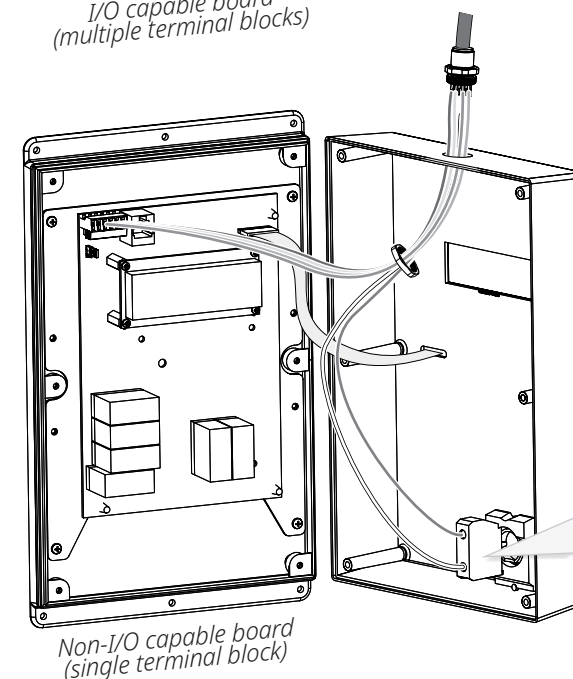
## IMPORTANT

**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)*



## 5: Check the controller to make sure the microcontroller board has room for the CAN bus comm board; if it does, set up the controller for the CAN bus cabling

### ⚠ WARNING

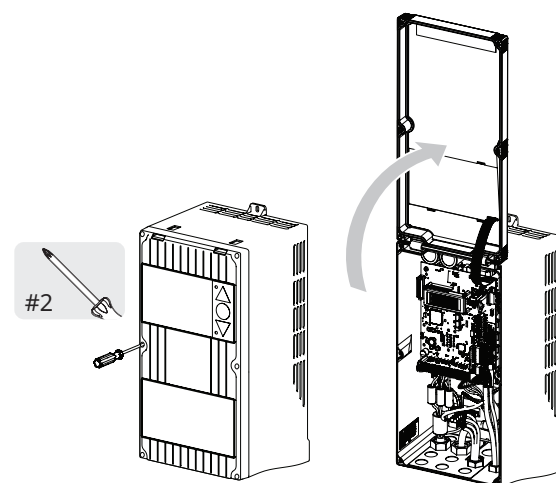


**Set the fused disconnect to the OFF position** and perform a lockout/tagout of the high-voltage disconnect before opening the control box. Do not set the disconnect switch to the ON position until told to do so by these instructions.

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



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



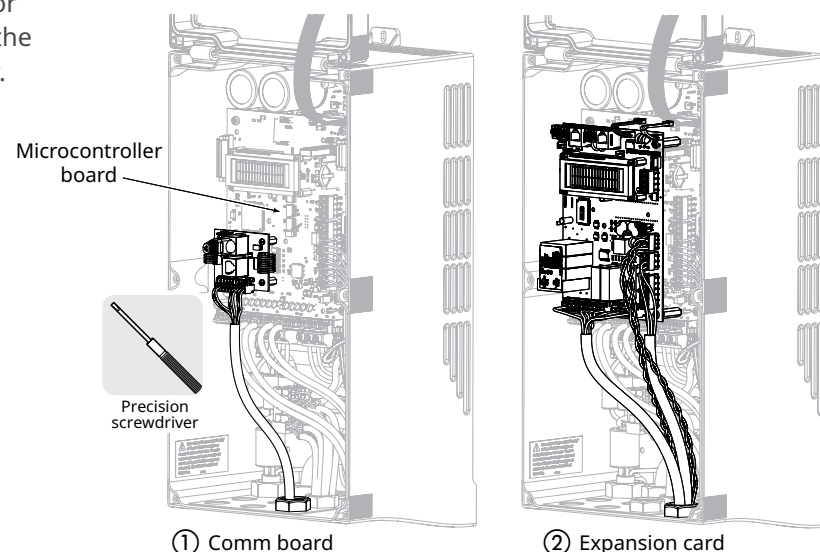
### 2 Look to see if there is a comm board or expansion card already installed onto the microcontroller board of the controller.

**If there is a comm board already installed ①**, loosen the wires and separate the cable. **There may also be** wires from the cable connected to other terminals: loosen them as well. You will **replace the cable** with the flying lead from the kit.

### IMPORTANT

**If there is an expansion card already installed ②**, **STOP** and call Ryttec technical support before continuing.

**If the microcontroller board is clear**, continue to the next step.



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

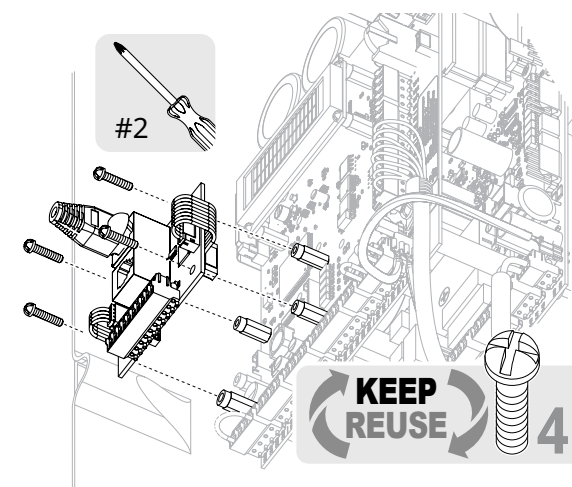
### 3 If this controller has an older comm board, **Get** the comm board from the kit.

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

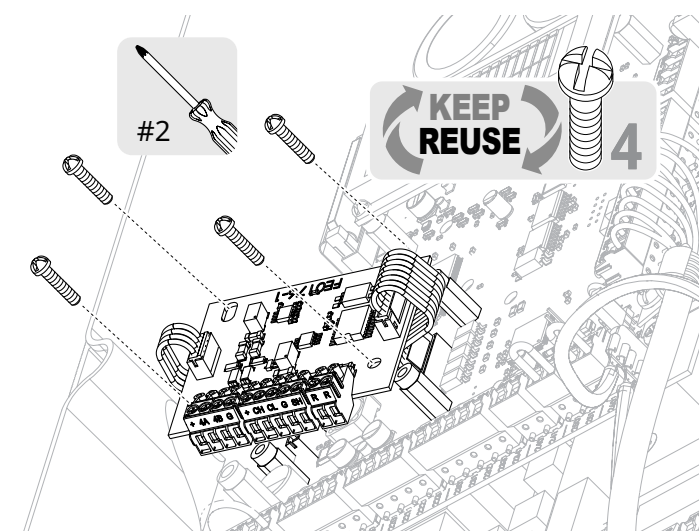
**Pull out** the four-wire and eight-wire connectors to free the board.

**Discard** the old board.

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

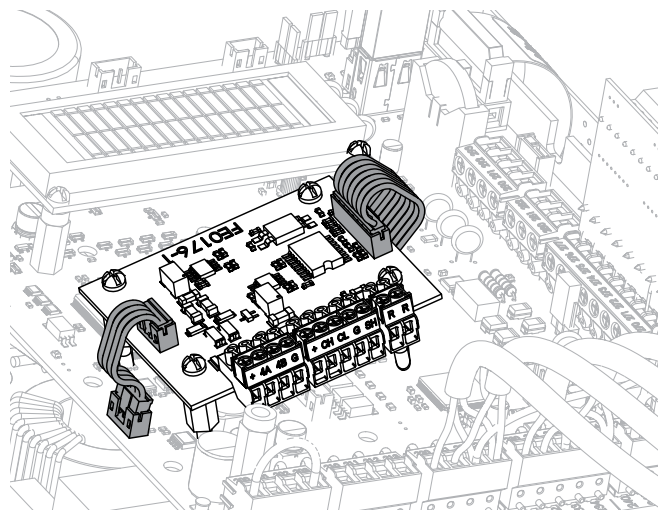


### 4 Plug in four-wire and eight-wire connectors on the new board, then reinstall the four plastic screws to secure the new board in place.

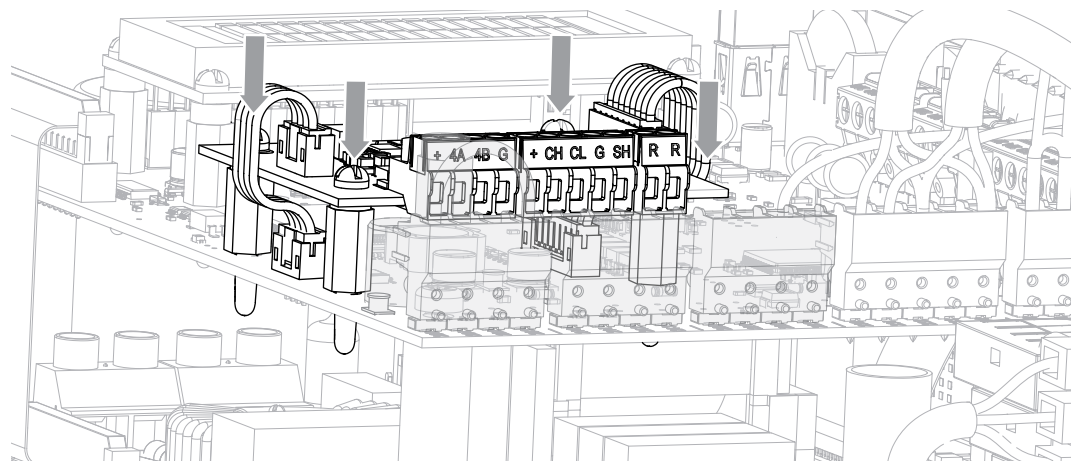


## Otherwise, install the comm board from the kit

- 5** Get the comm board from the kit.
- Plug** the four-wire and eight-wire connectors into the matching receptacles on the board.

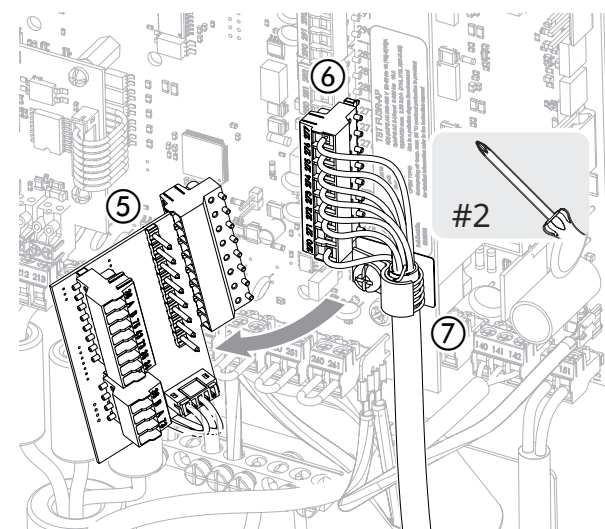
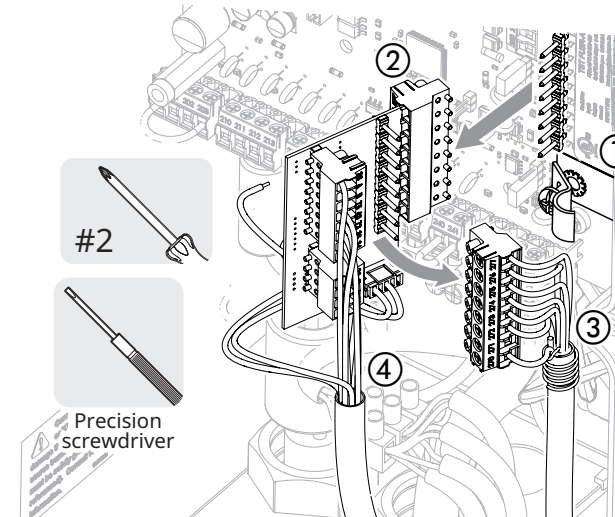


- 6** Line up the four legs and press down until the board snaps into place.

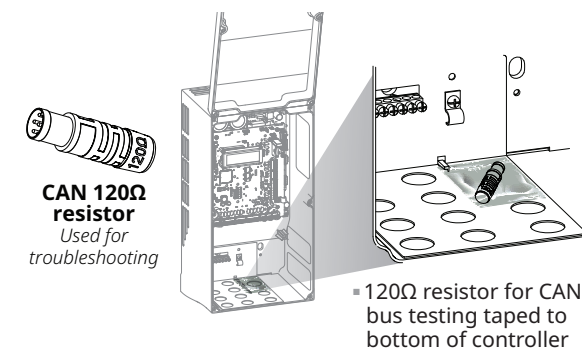


## If the door has light curtains, remove the interface board

- 7** If the door has light curtains:
- There is an interface board plugged in to terminal block 270-277.
- The same terminal block is also on the board, and the encoder cable is wired to it.
- The terminal block on the board must be removed and connected directly to the microcontroller board.
- Loosen the P-clip ① that secures the encoder cable.
  - Loosen the wires from the interface board that connect to terminals 222, 232, 240 and 241.
  - Remove the interface board ② from terminal slots 270-277.
  - Remove terminal block 270-277 ③, and the attached encoder cable, from the interface board.
  - Loosen the wires and remove the X10 cable ④ from the interface board. Leave the cable in place until later in this procedure.
- Discard the interface board ⑤.
  - Plug the terminal block from the interface board, with the encoder cable wired to it ⑥, into slots 270-277.
  - Secure the cable with the P-clip ⑦.



- 8** 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.



- 9** The door is now ready for the retrofit.

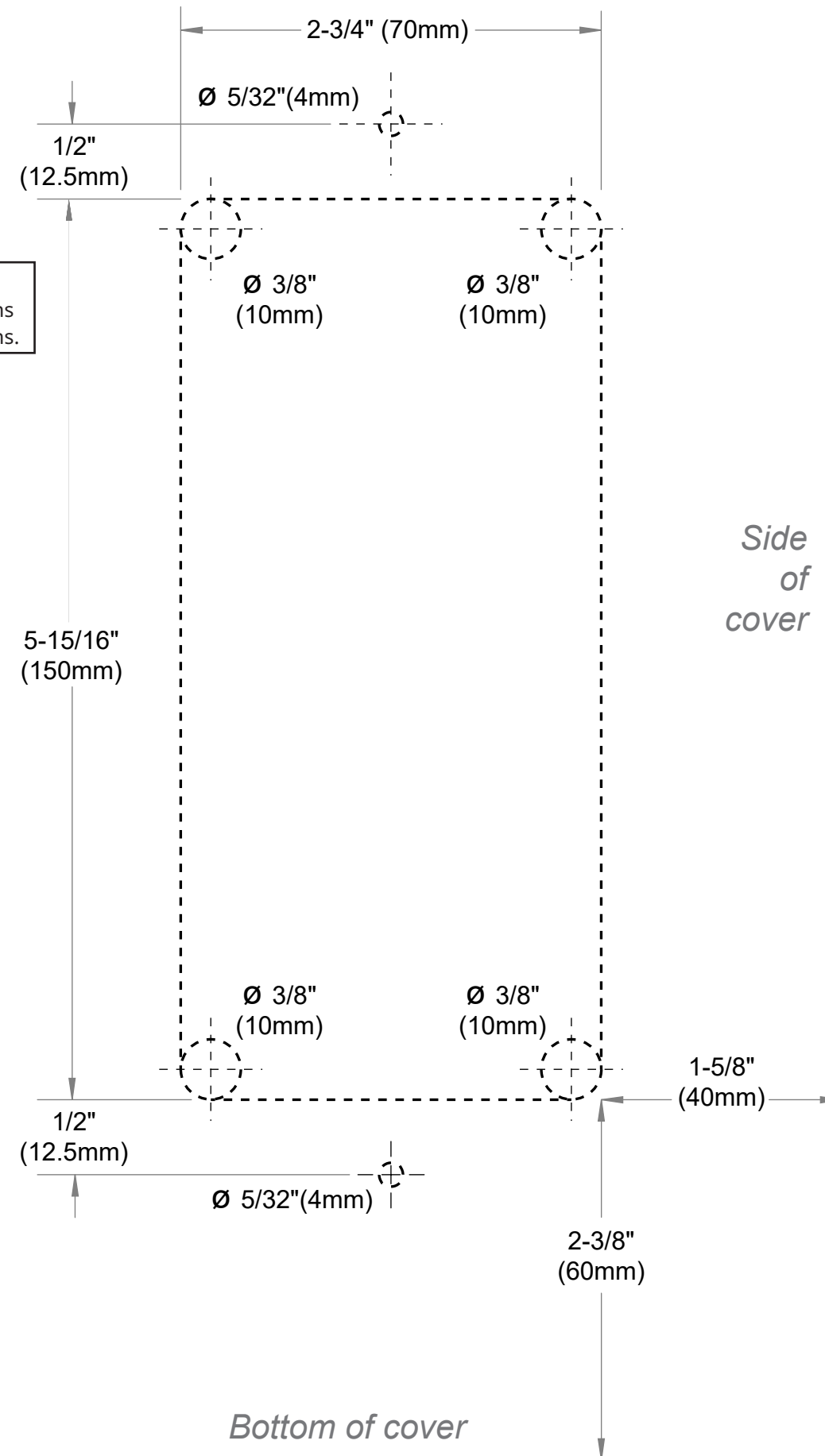
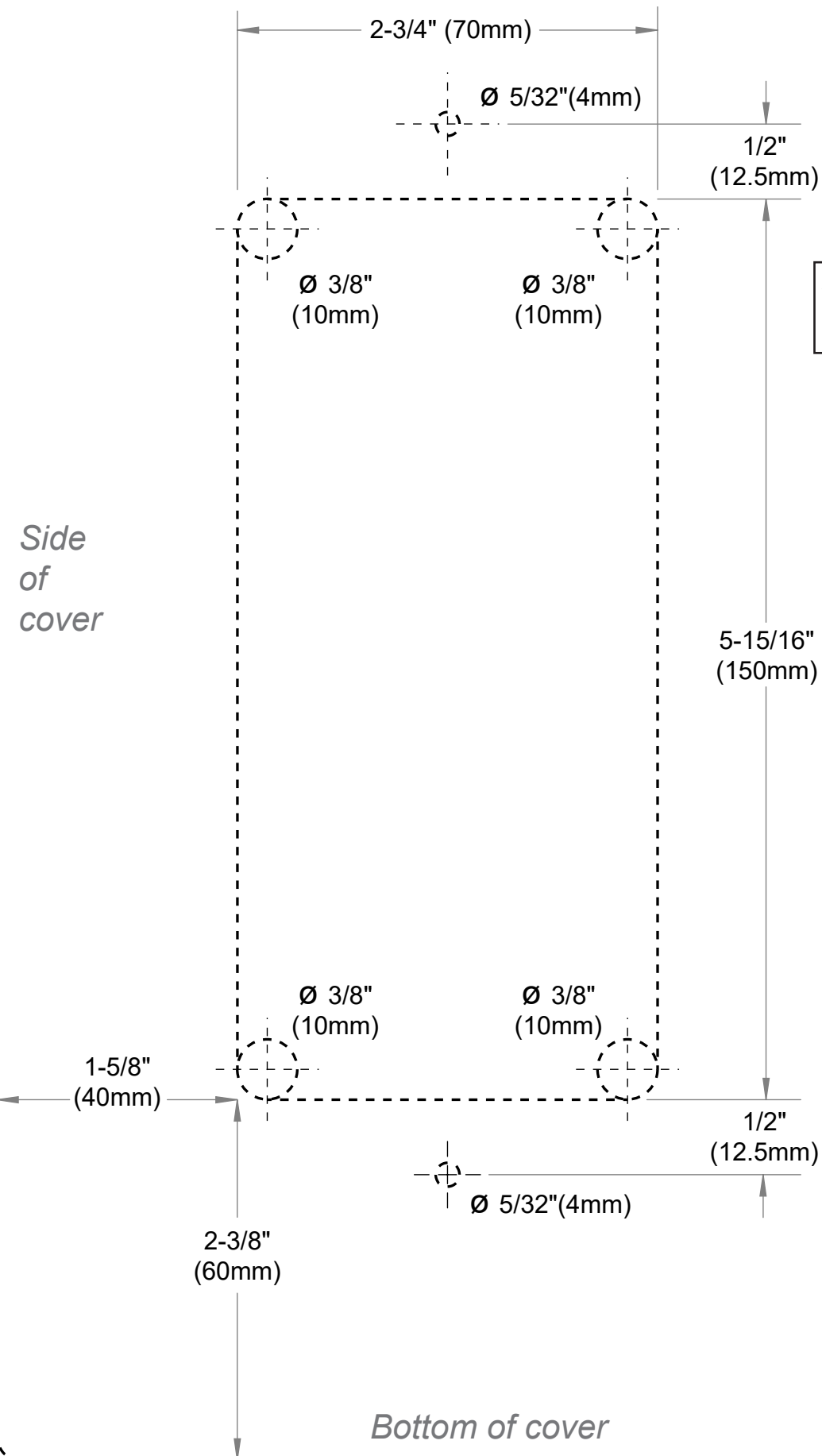


Left side  
side column cover

Right side  
side column cover

Template #1:  
cutout for  
side column  
access port  
This template is  
used in  
Step 2 on page 8

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



Back of Template #1  
Intentionally left blank



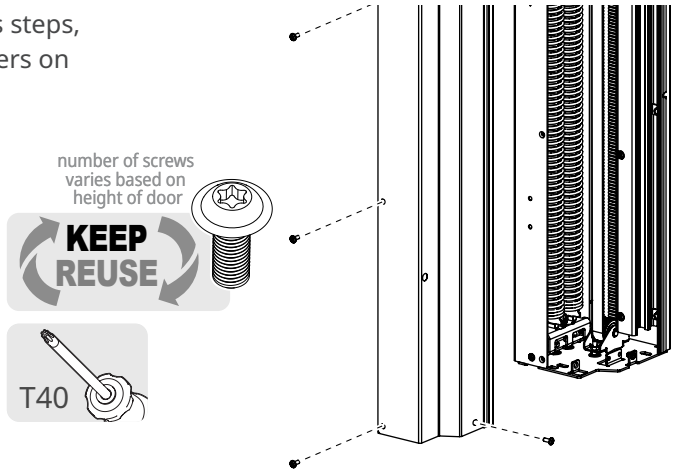
## How to install the SmartSurround™ light curtains

INSIDER'S TIP

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.

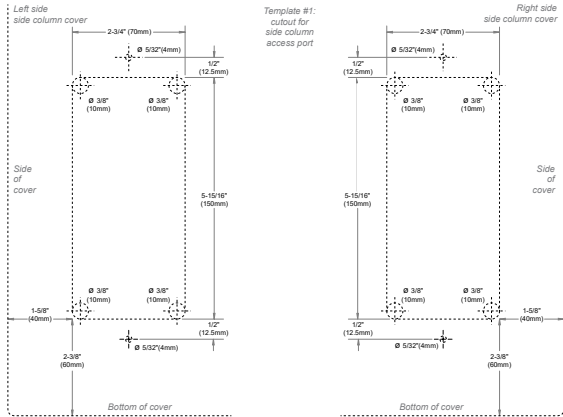
The **left side side column cover** is shown for these steps.



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

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

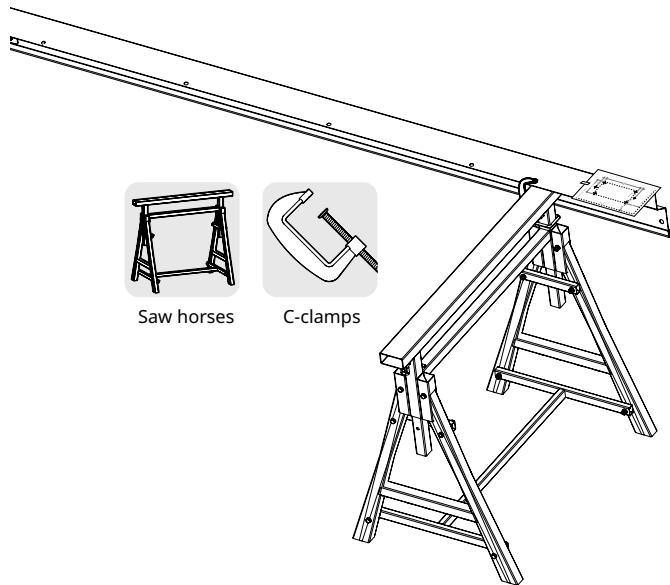
**Tape** the templates to the side columns.



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

**IMPORTANT**

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



Template #2:  
holes for  
side column  
cover  
SmartSurround™

This template is  
used in  
Step 7 on page 12

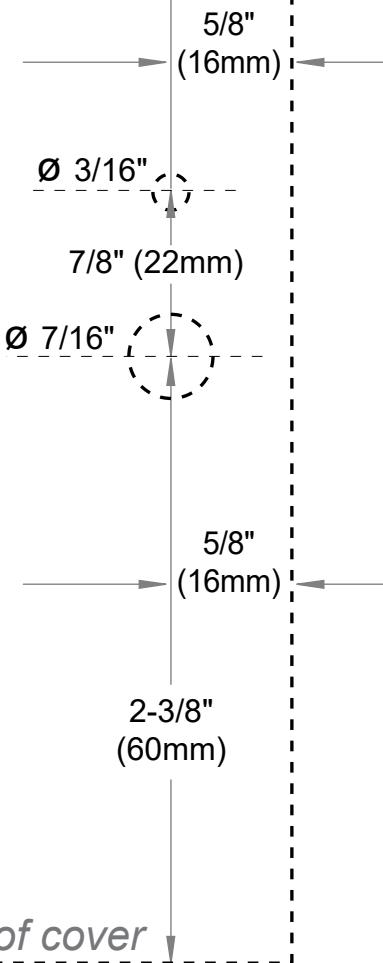
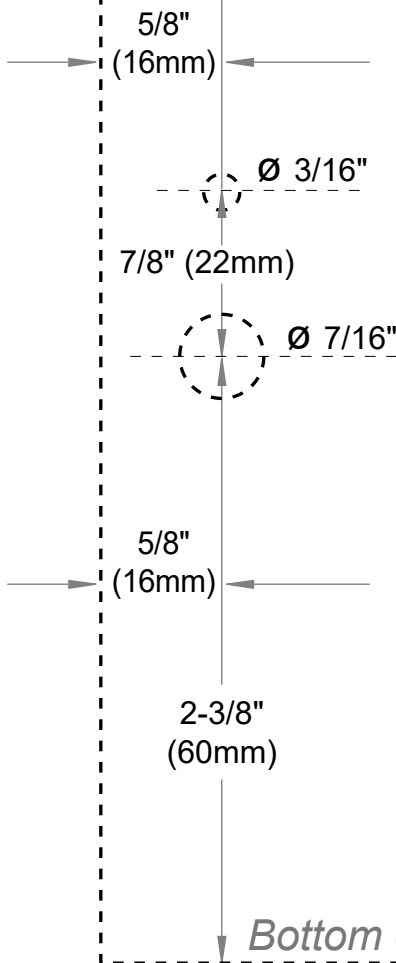
Left side side column

Right side side column

Side  
of  
cover

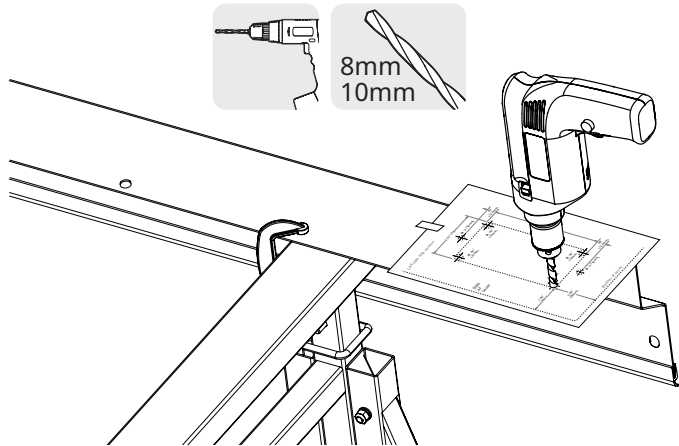
Side  
of  
cover

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

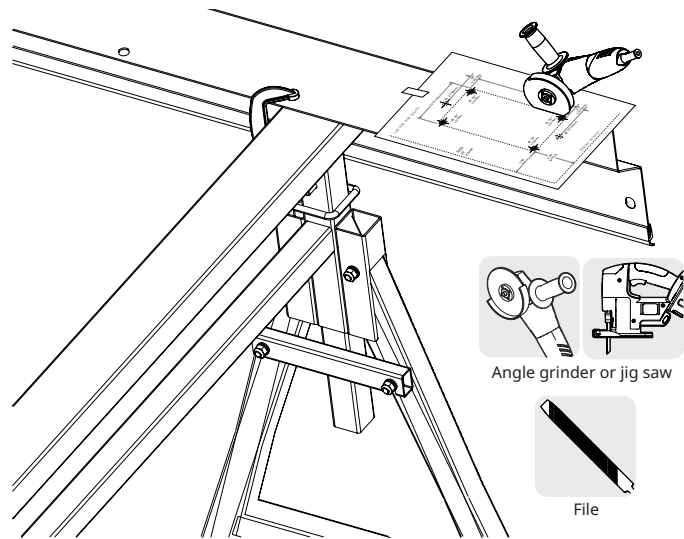


Back of Template #2  
Intentionally left blank

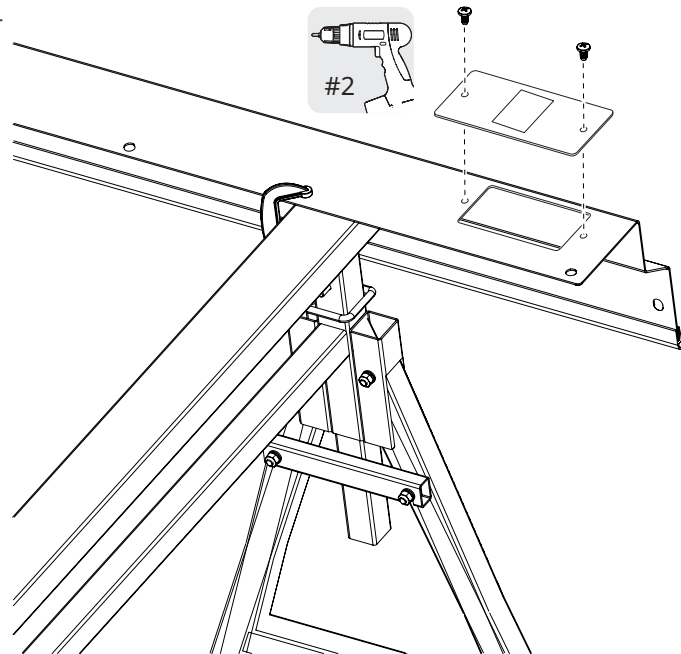
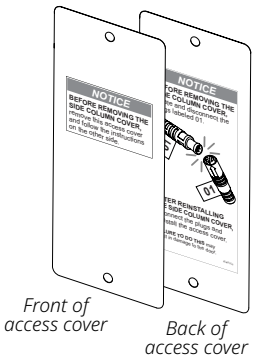
- 4 **Drill out** the four corners for the side column access port.  
**Drill out** the two holes for the tek screws.



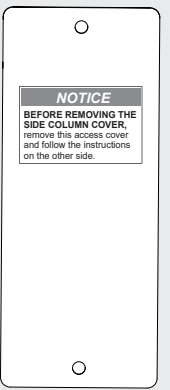
- 5 **Cut** between the corners with an angle grinder or jigsaw.  
**File** all edges smooth when you are done



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

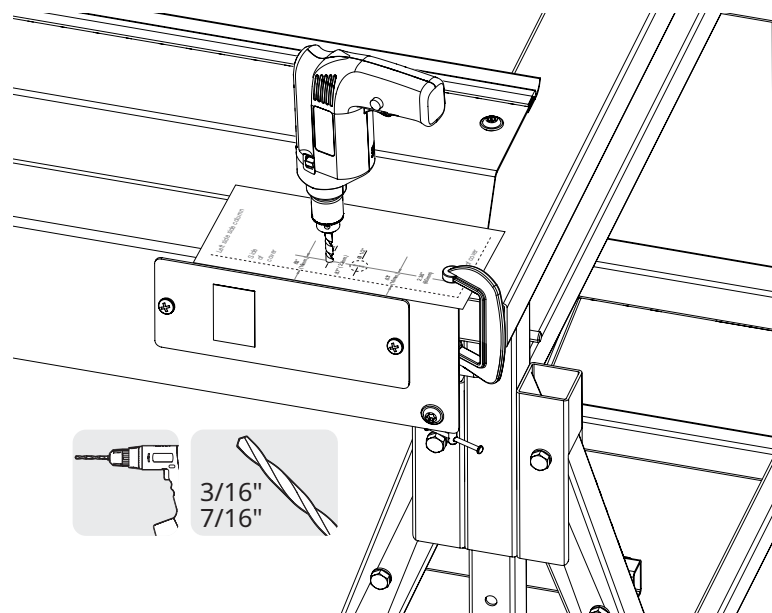


FROM KIT

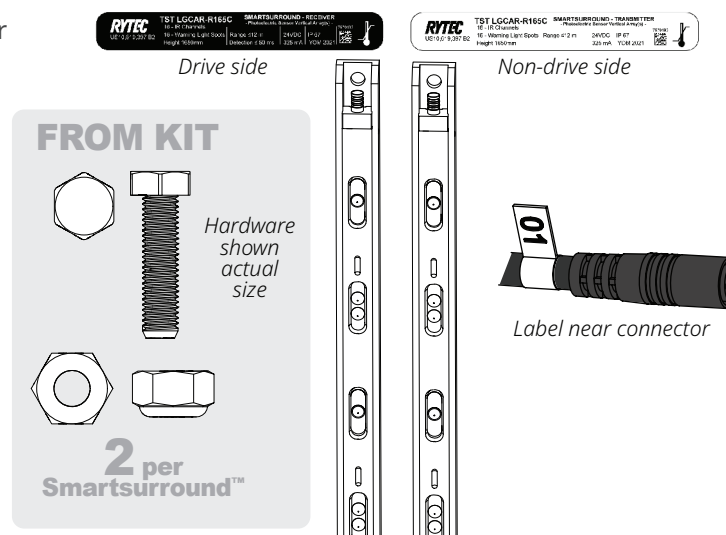


2  
Hardware  
shown  
actual  
size

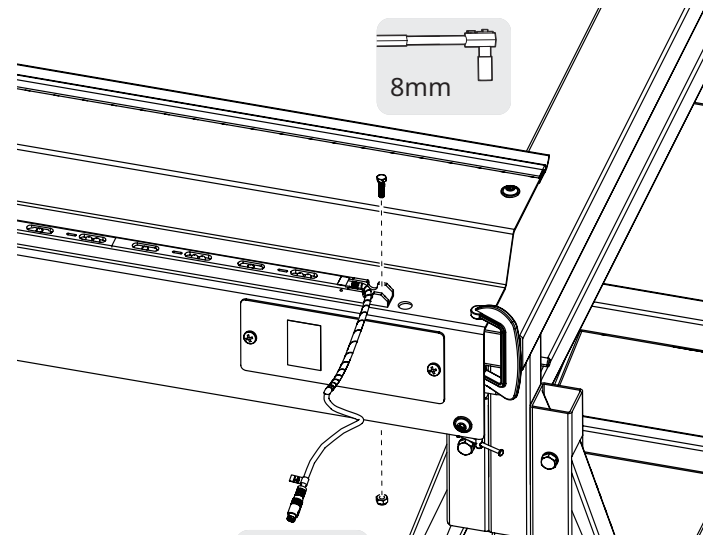
- 7 Flip and reclamp** the side column.  
**Remove** the drilling templates (#2) from the previous page.  
**Separate** into drive and non-drive side and **tape in place** on the side columns.  
**Drill out** the holes for the bottom bolt and the SmartSurround™ cable.



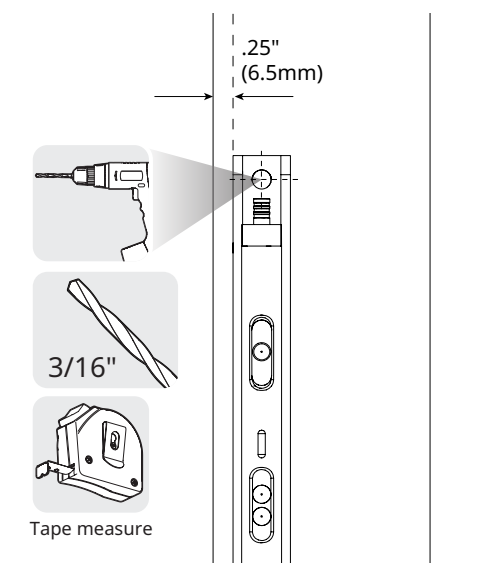
- 8 Get** the labeled SmartSurround™ transmitter and receiver, as well as the mounting hardware, from the kit.  
**Check the labels** and make sure the receiver goes on the drive side cover and the transmitter goes on the non-drive side cover.



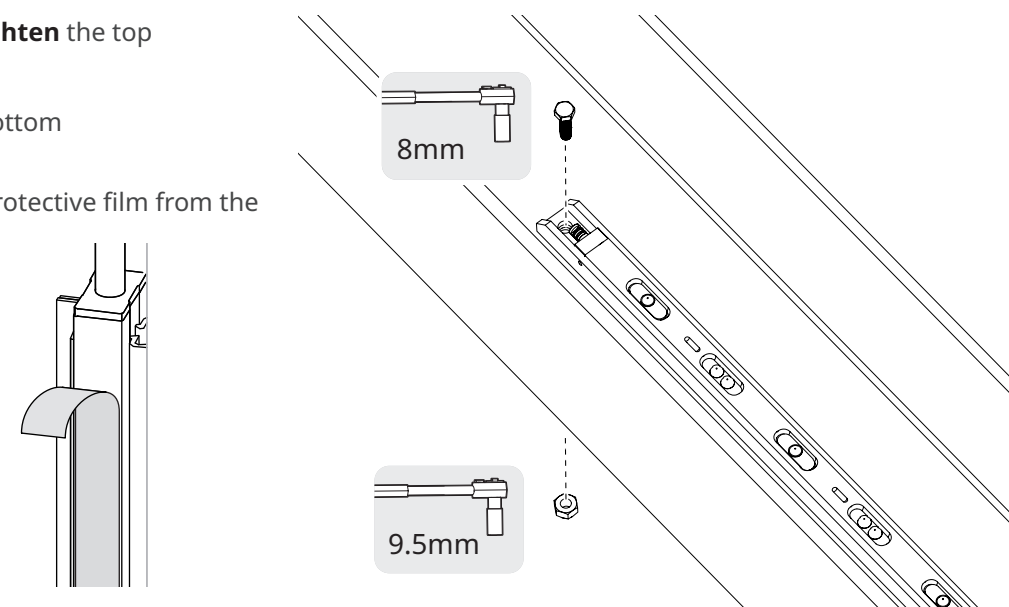
- 9 Install** the bolt and nut into the bottom hole in the SmartSurround™ mounting channel.  
**Leave them loose** until you have installed the top bolt/nut combination.



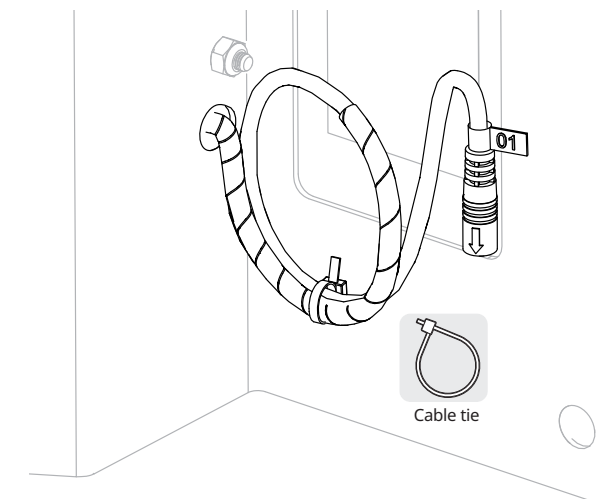
- 10 Line up** the SmartSurround™ mounting channel with the edge of the side column.  
 ■ There should be .25" distance from the edge the full length of the light curtain.  
**Drill out** the top bolt hole through the top hole in the channel.



- 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.





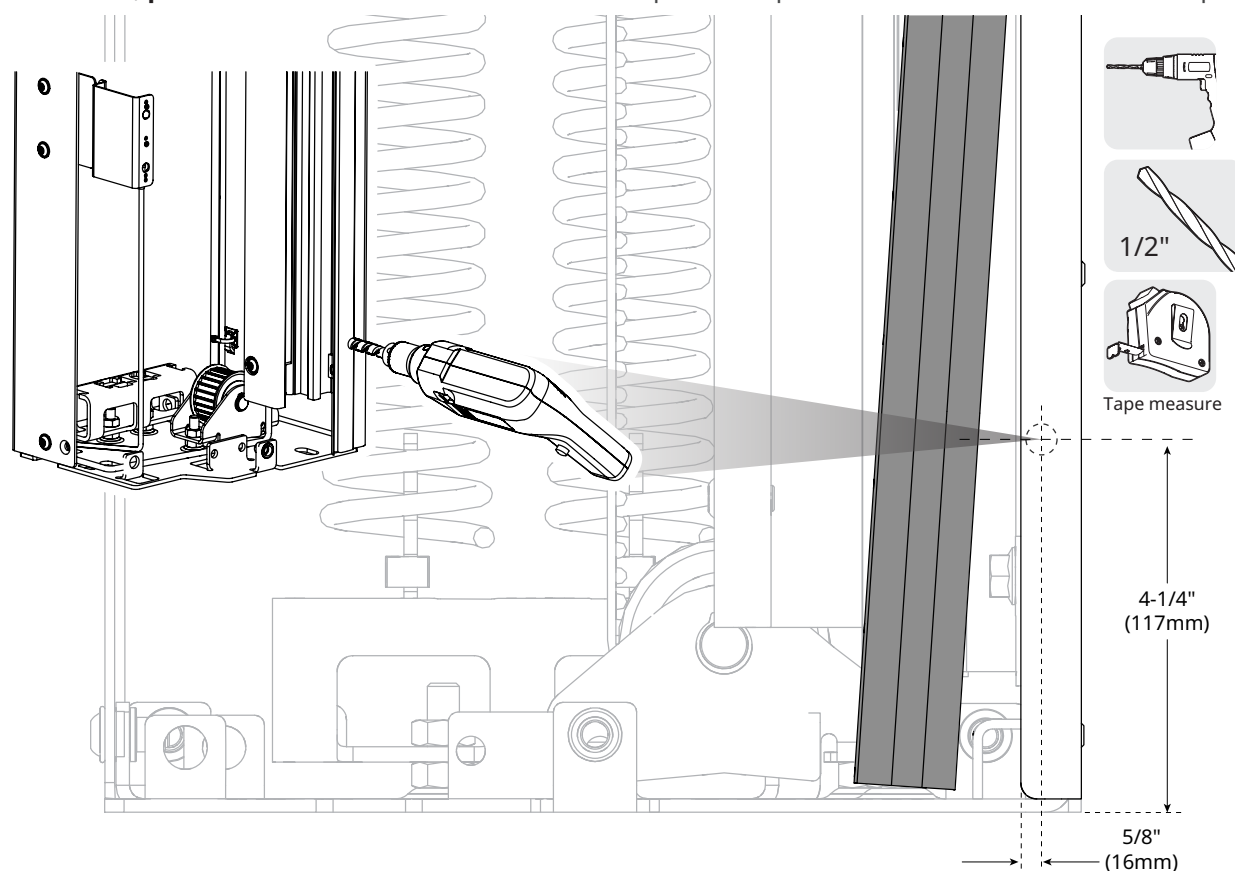
**13 Drill oDrill out** the hole in the rear of the side column for the cable from the jamb mounted SmartSurround™.

**IMPORTANT**

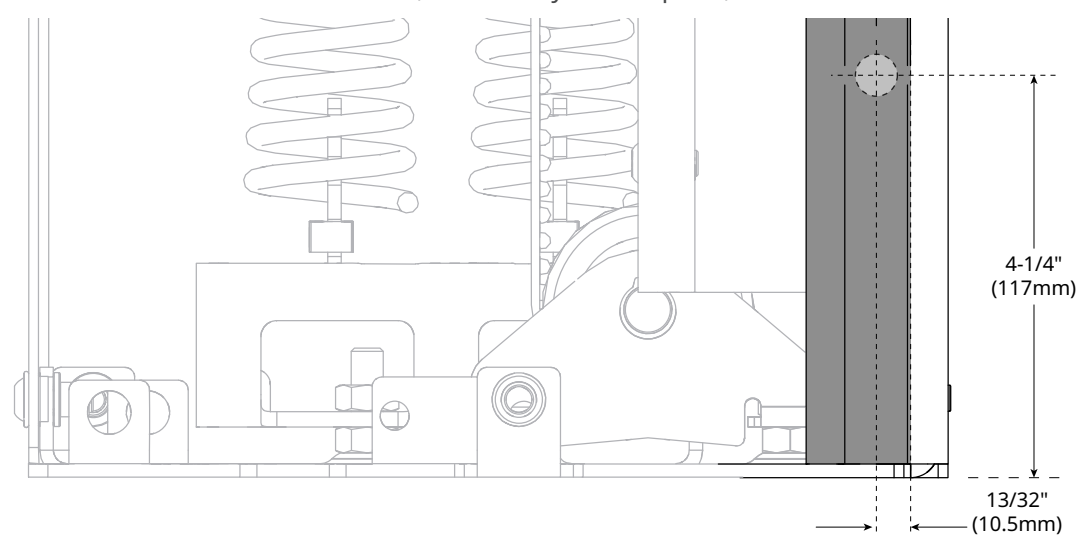
**Make sure** there are no cables where you are drilling. If necessary, wait until you have removed the current cabling before doing this step.

**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**

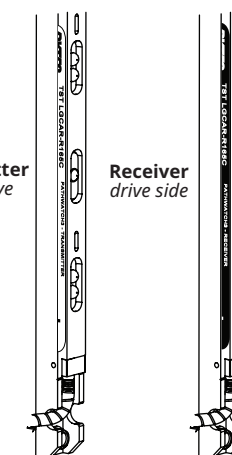
**Make sure** the jamb mounted and cover mounted SmartSurround™ transmitters are both on the **non-drive side of the door**.

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.

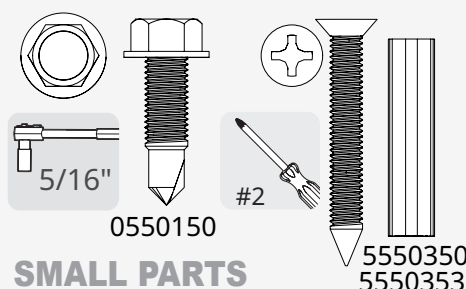
Transmitter  
non-drive  
side

Receiver  
drive side



**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.



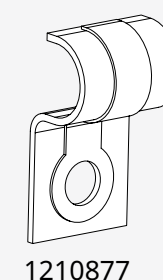
**SMALL PARTS**

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

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

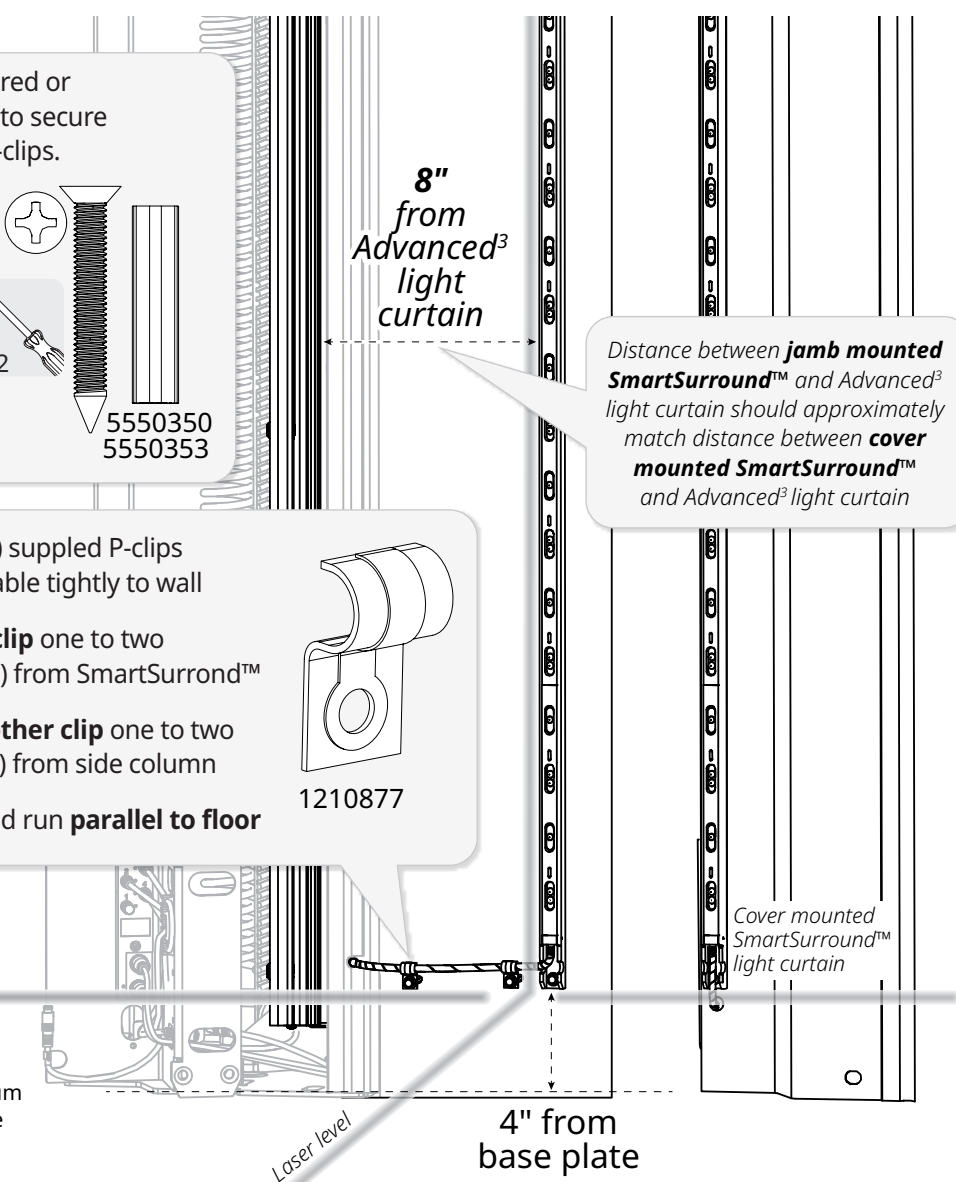
Place the other clip one to two inches (1-2") from side column

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**.



## 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 on this page for the BTA4 unit.

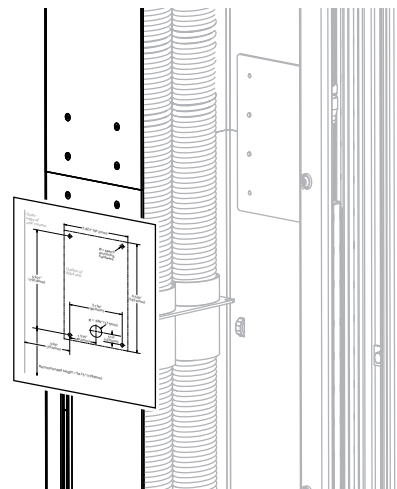
Position it on the drive-side side column.

**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.**



### 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.

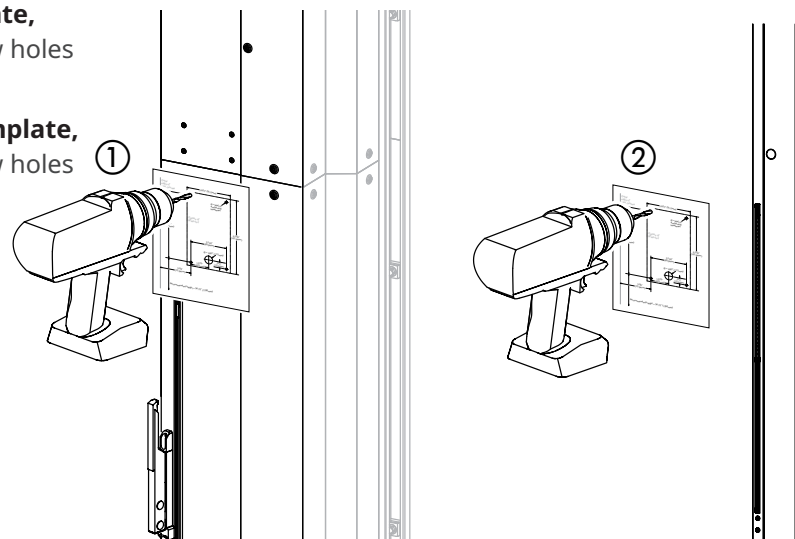
**Match the drill bit** to the supplied hardware or your own.

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

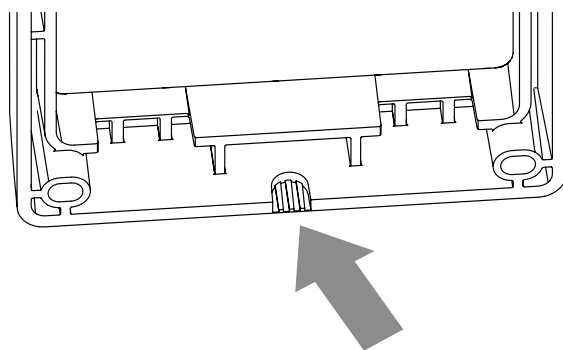
**Use** a step bit to drill the large hole for the cable.

**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.



Outer edge of side column

3"  
75.0mm

**NOTE:** if the unit cannot be securely mounted to the side column using these specifications, the unit should be mounted to the wall.

3-7/8"  
97.2mm

Ø = Match anchoring hardware

Outline of BTA4 unit

5-15/16"  
150.4mm

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

6-1/2"  
165.6 mm

3-5/32"  
80.0 mm

Ø = 11/16" 17.5mm

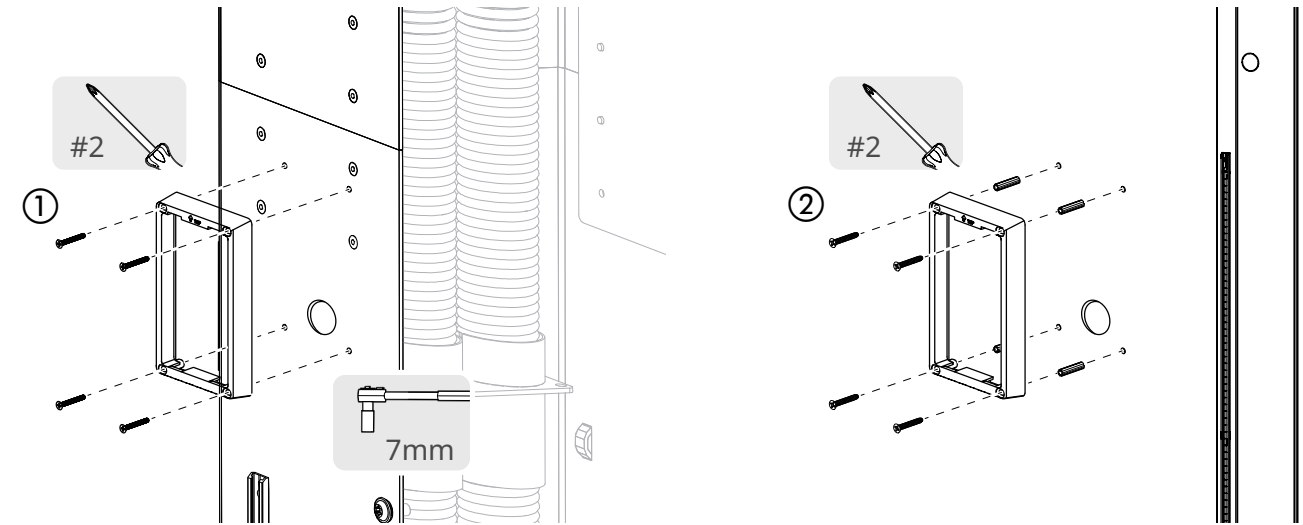
1/2"  
13.0mm

1-9/16"  
40.0mm

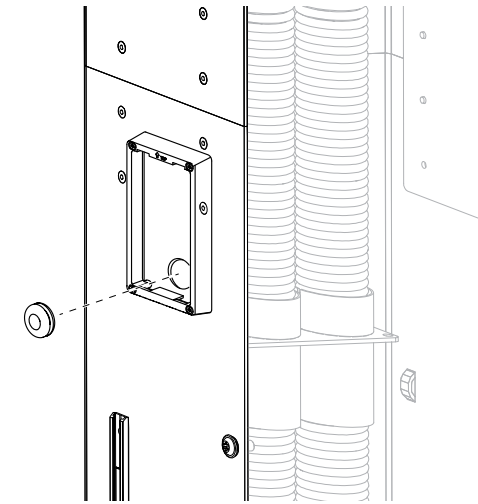
Recommended height = 54-3/4" 1390mm

Back of BTA4 template  
Intentionally left blank

- 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.





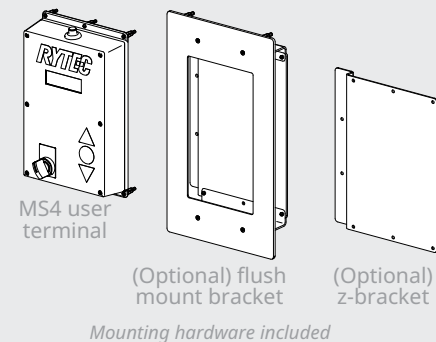
## OPTIONAL: How to install the MS4 user terminal

**IMPORTANT**

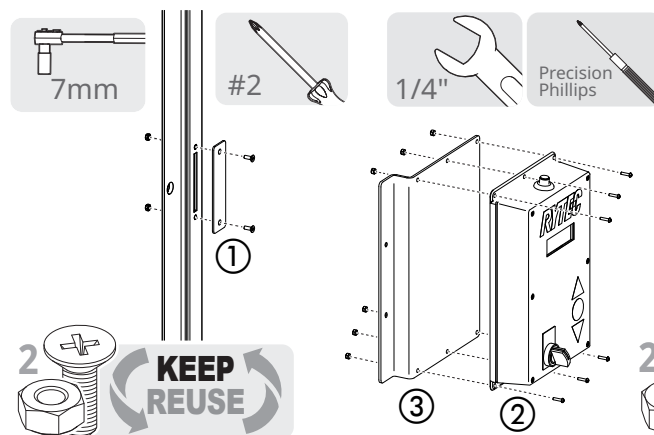
Check with the door owner whether they want the MS4 installed into the side column or remotely.

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

### SMALL PARTS

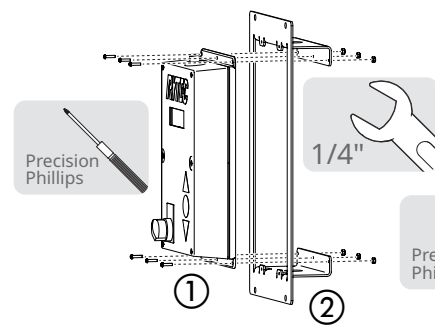


- 2 **Anchor the user terminal** at an easily accessible height using the included hardware. The user terminal can be mounted onto the wall, flush to the wall using the optional bracket, or onto the side column using the optional z-bracket.



#### 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.

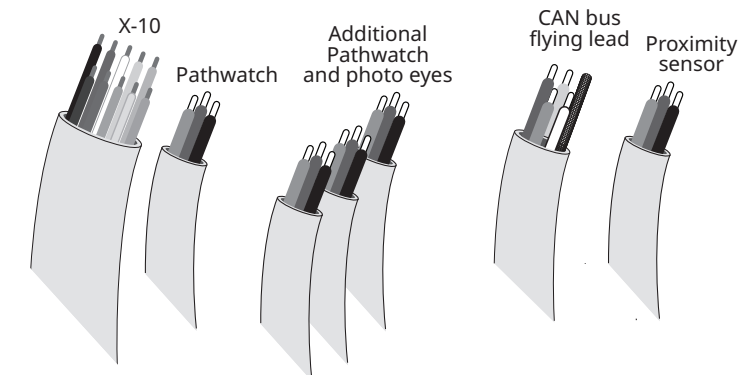
## How to remove the Pathwatch, light curtains or photo eyes, and internal cabling

**IMPORTANT**

**INSIDER'S TIP**

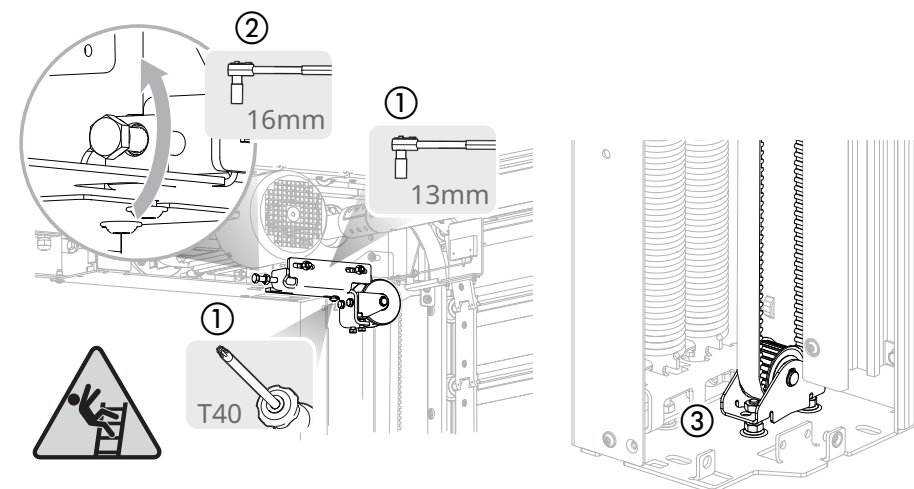
- **Keep cabling intact when you remove it.** At least one cable is needed to route the proximity sensor directly to the controller, and the controller may be some distance from the door. So cut cable ties, but not cable.
- **It should not be necessary to add conduit.** You will remove more cables than you add. You should be able to install the CAN bus flying lead and the spliced cable for the proximity sensor into the same conduit. **Call Rytec technical support if you have any questions.**

Cables removed from conduit      Cables added to conduit



- 1 **Loosen** the secondary drive belt until there is considerable slack. This makes it easier to access the back of the side column.

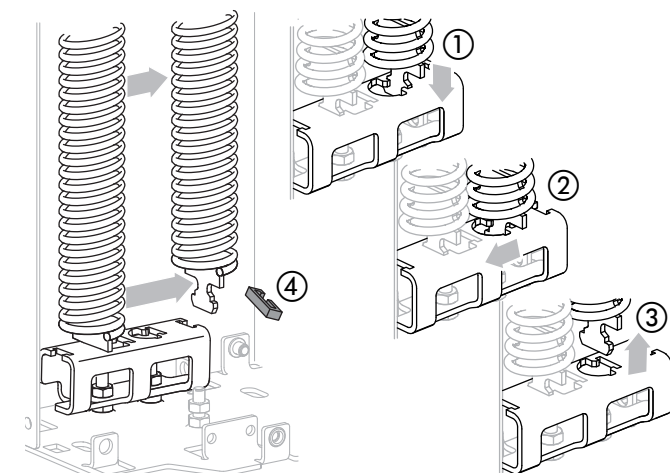
- 1: **Loosen** the restraining bolts on the idler bracket ①, then **turn** the adjustment screw ② **counterclockwise** until the bracket stops moving forward.
- 2: If necessary, **loosen** the front nut on the baseplate pulley assembly ③. **DO NOT** remove the nut.



- 2 **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.



## First, remove the Pathwatch LED strips and cables

**1** In both side columns, unplug the Pathwatch LED strips at the quick connect ①.

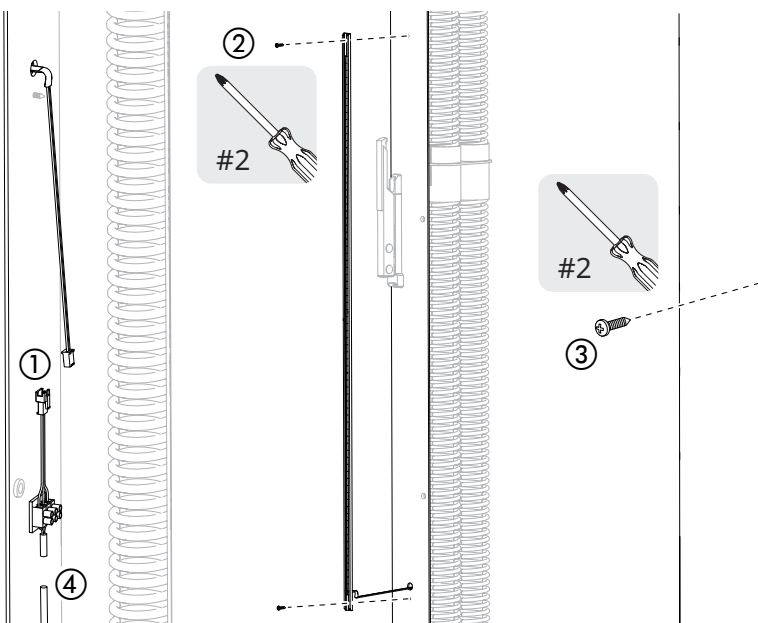
Remove the Pathwatch strips from the side columns ②.

Replace the screws ③ to maintain the appearance of the side columns.

Cut the cable below the jumper ④ and discard the jumper and quick connect.



Cutting pliers



**2** Inside the controller, disconnect the Pathwatch cable from terminal block 140-142.

Disconnect the wires from the terminal block, cut the cable or cables where they enter the conduit and remove.

**INSIDER'S TIP**

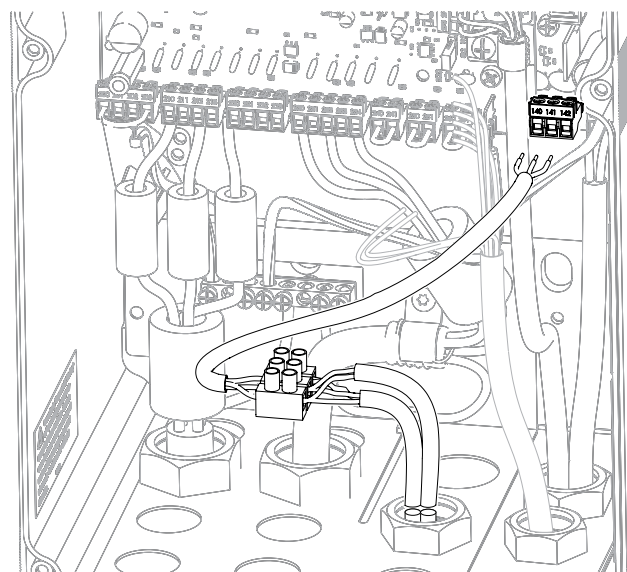
Pathwatch cables may be spliced at the door, or inside the controller, so there may be one, or multiple, cables at the controller.



Precision screwdriver



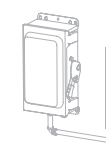
Cutting pliers



**3**

Remove the Pathwatch cables from the drive side and non-drive side of the door.

Cut cable ties, but leave the cables intact.



Cutting pliers

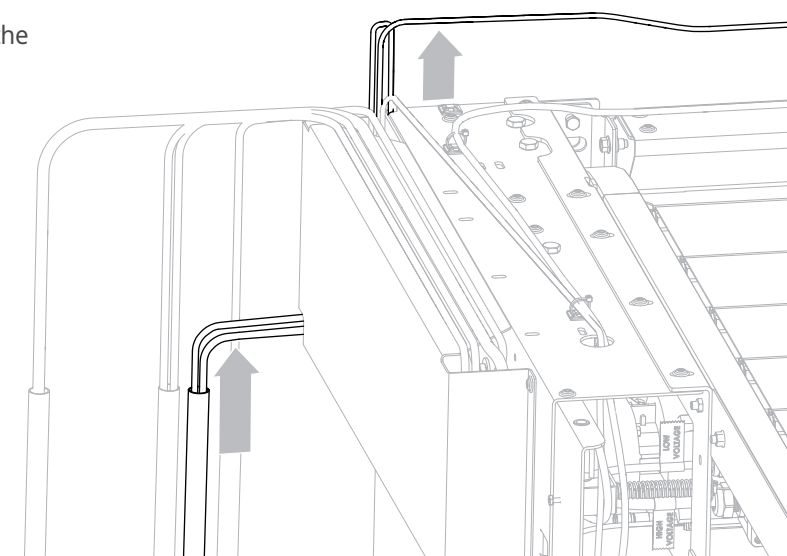
If correctly installed, the Pathwatch cables run up the rear of the side columns and through the small opening at the rear of the consoles.

The non-drive side cable runs across the top of the rear spreader, along with the photo eye or light curtain cables.

**4**

Follow the cable to its conduit, and fish the cable up and out until it is completely free.

Set aside for potential reuse.



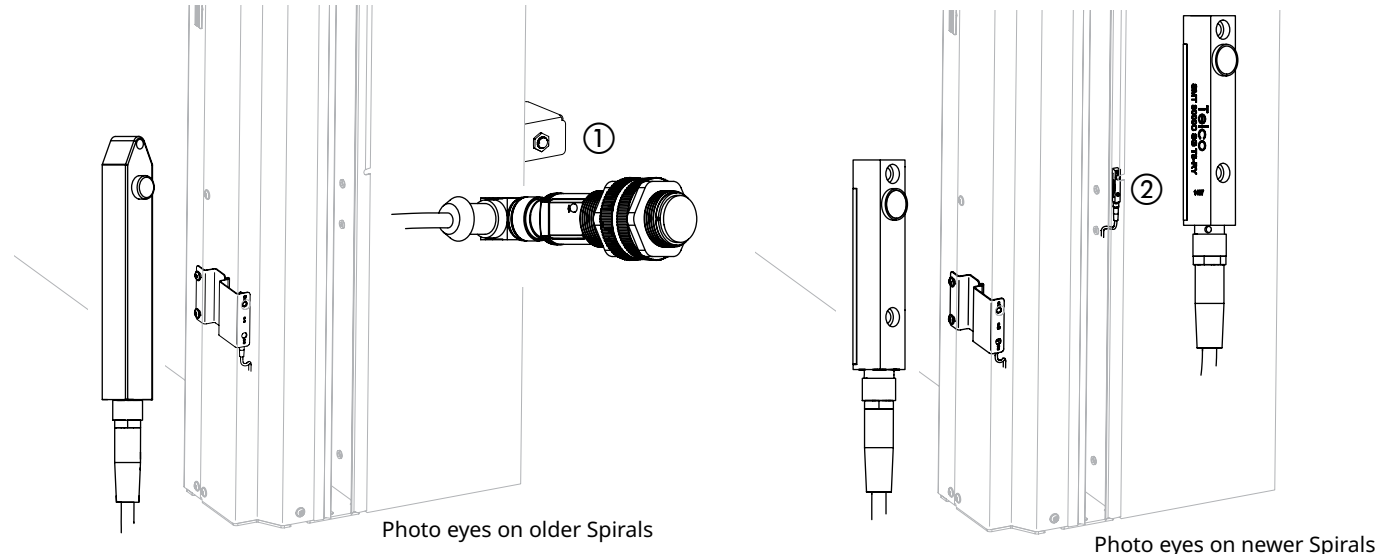
## Then, on doors with photo eyes, remove the photo eyes and cables

- 1** Depending on the age of the door, the rear set of photo eyes (transmitter and receiver) on a Spiral may be mounted remotely, on the wall behind the door opening ①, or inside the side column ②.

Different sets of photo eyes have also been used at different times.

The front photo eyes have always been mounted inside the side column.

Each photo eye has a separate cable. The front and rear set of photo eye cables may route to the X-10 junction box, directly to the controller, or both.

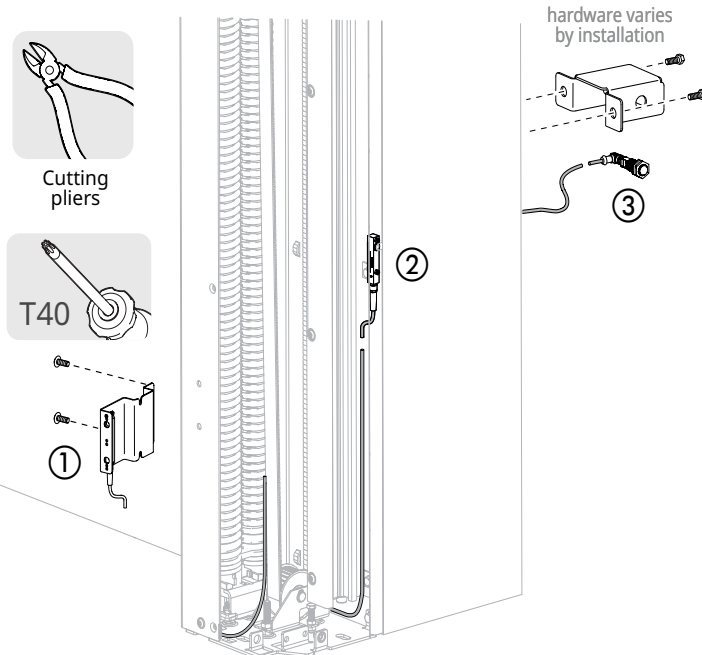


- 2** Remove the photo eyes in both side columns.

For **front photo eyes** ①, remove the bracket and cut the cable below the connector. **Discard** the brackets and photo eyes.

For **rear photo eyes mounted in the side column** ②, cut the cable below the connector. You can leave the photo eyes in place.

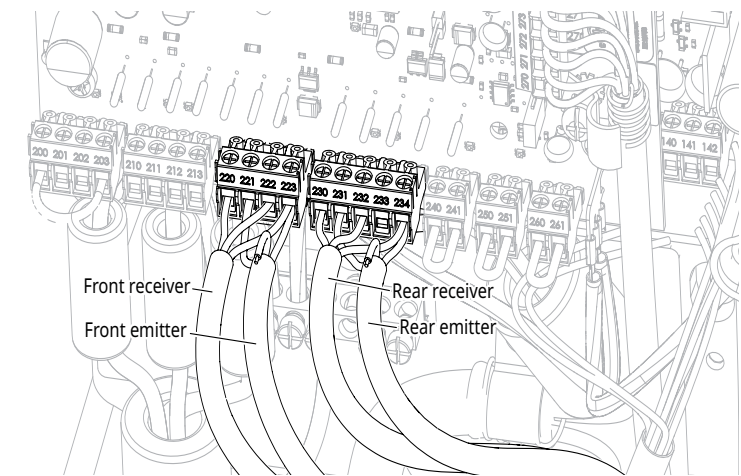
For **rear photo eyes mounted remotely** ③, remove the bracket and cut the cable below the connector. **Discard** the brackets and photo eyes.



- 3** Inside the controller, check for photo eye cables at terminal blocks 220-223 and 230-234.

**Disconnect** the wires, cut the cables where they enter the conduit and remove.

**If all four cable are not in the controller**, the remaining cables are connected to the X-10 junction box.



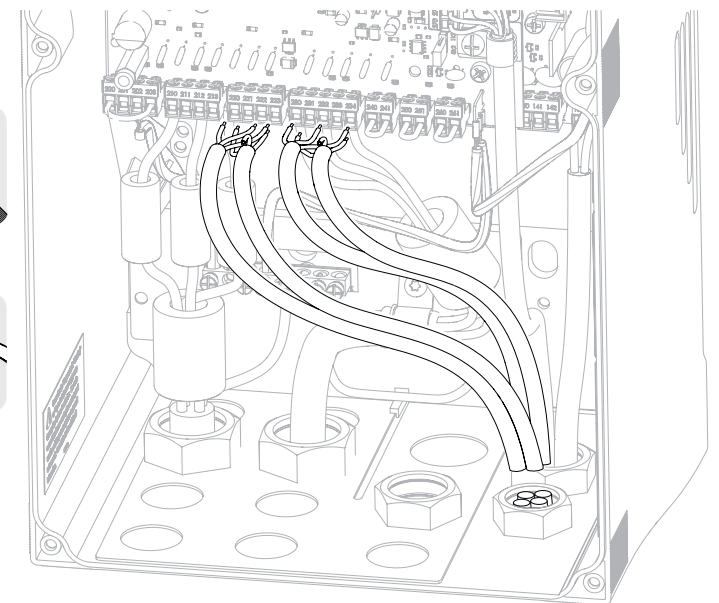
- 4** **Disconnect** the wires from the terminal block, **cut** the cable or cables where they enter the conduit and remove.



Precision screwdriver



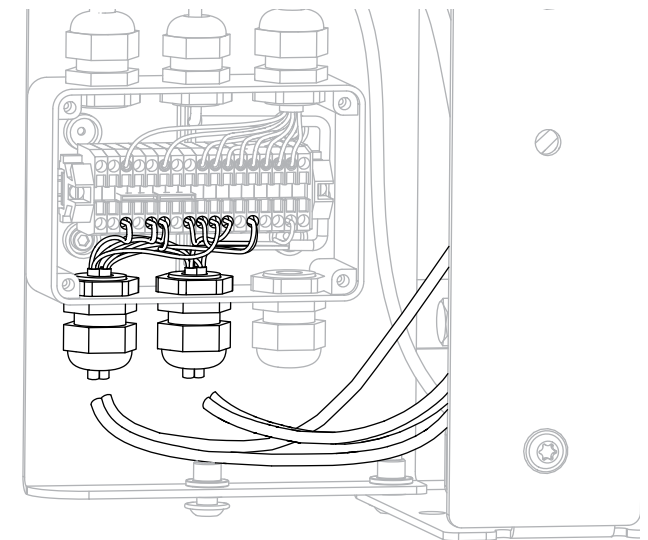
Cutting pliers



- 5** **Locate** any remaining photo eye cables at the X10 junction box and **cut** the cables.



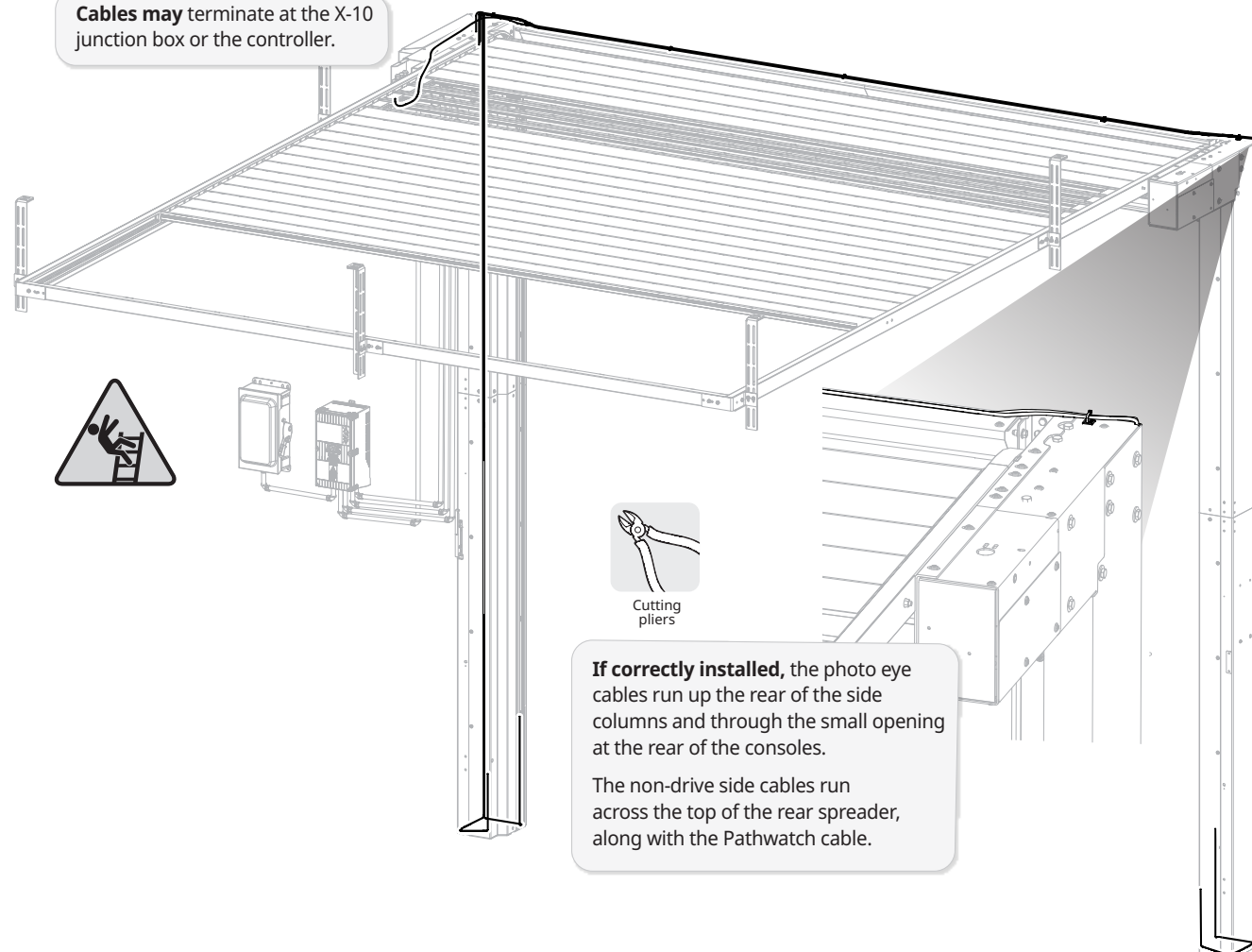
Cutting pliers





- 6 Remove the photo eye cables** from the drive side and non-drive side of the door.  
Cut cable ties, but leave the cables intact.

Cables may terminate at the X-10 junction box or the controller.

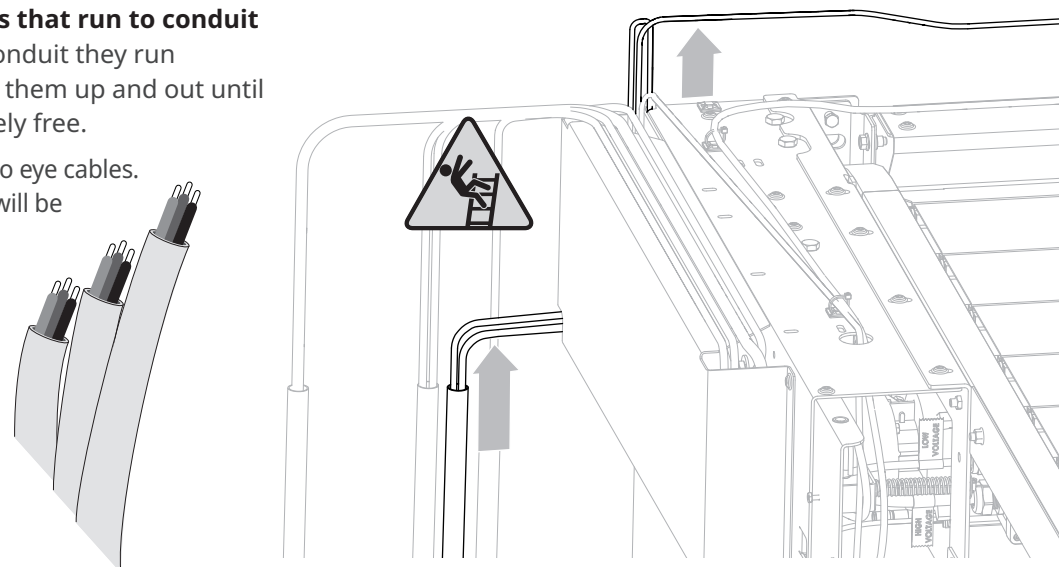


If correctly installed, the photo eye cables run up the rear of the side columns and through the small opening at the rear of the consoles.

The non-drive side cables run across the top of the rear spreader, along with the Pathwatch cable.

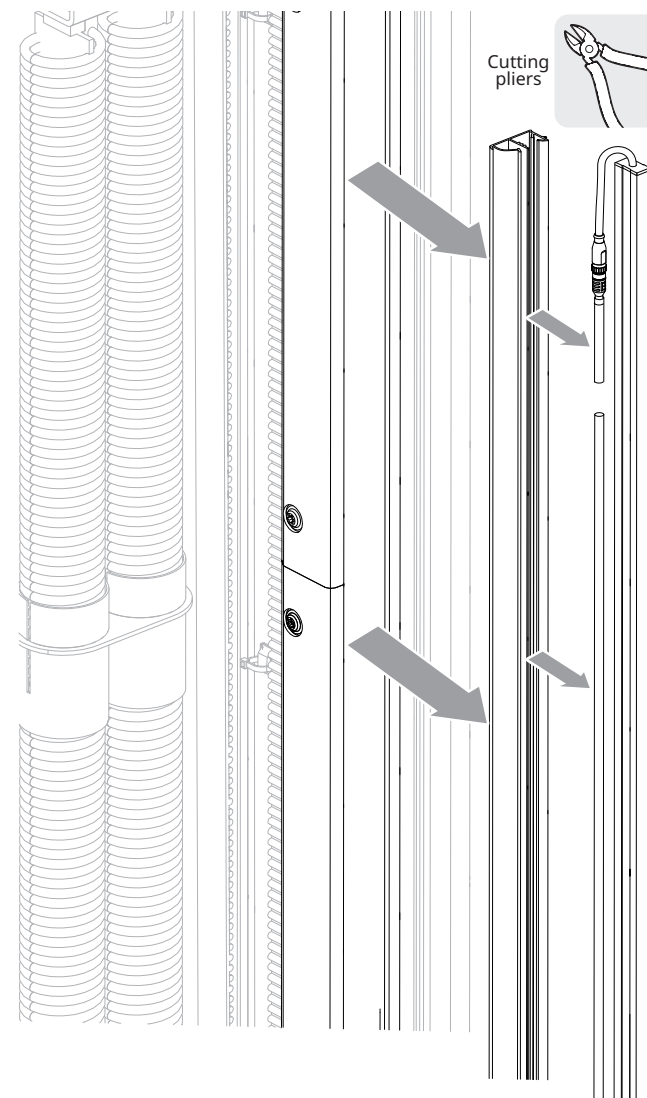
- 7 Follow the cables that run to conduit** to locate which conduit they run through, and fish them up and out until they are completely free.

Compare the photo eye cables. The longest cable will be spliced to the proximity sensor cable.



## On doors with light curtains, remove the light curtains and cables

- 1 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.

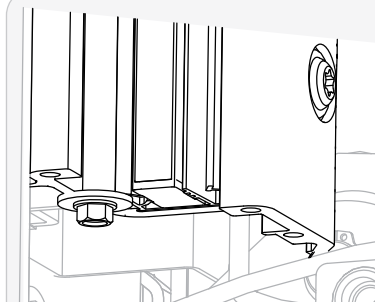
The new track clips are held in place by friction.



Chisel



Alcohol wipes



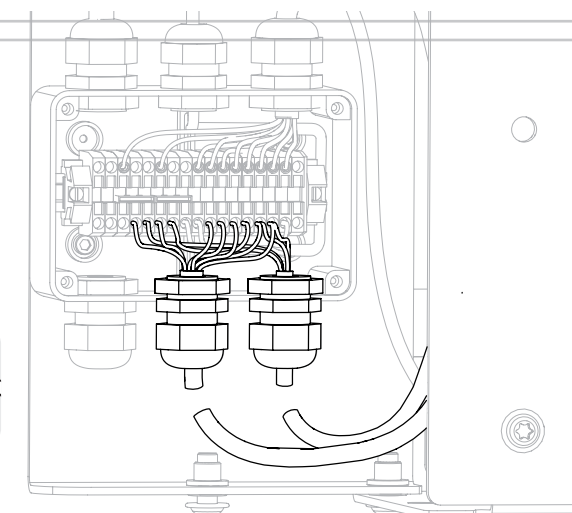
Some doors have **washers, bumpers or brackets** added to the bottom of the door track to prevent the clips from slipping.

Theses can **remain in place**.

- 2 Locate** the light curtain transmitter and receiver cables at the X10 junction box and **cut** the cables.

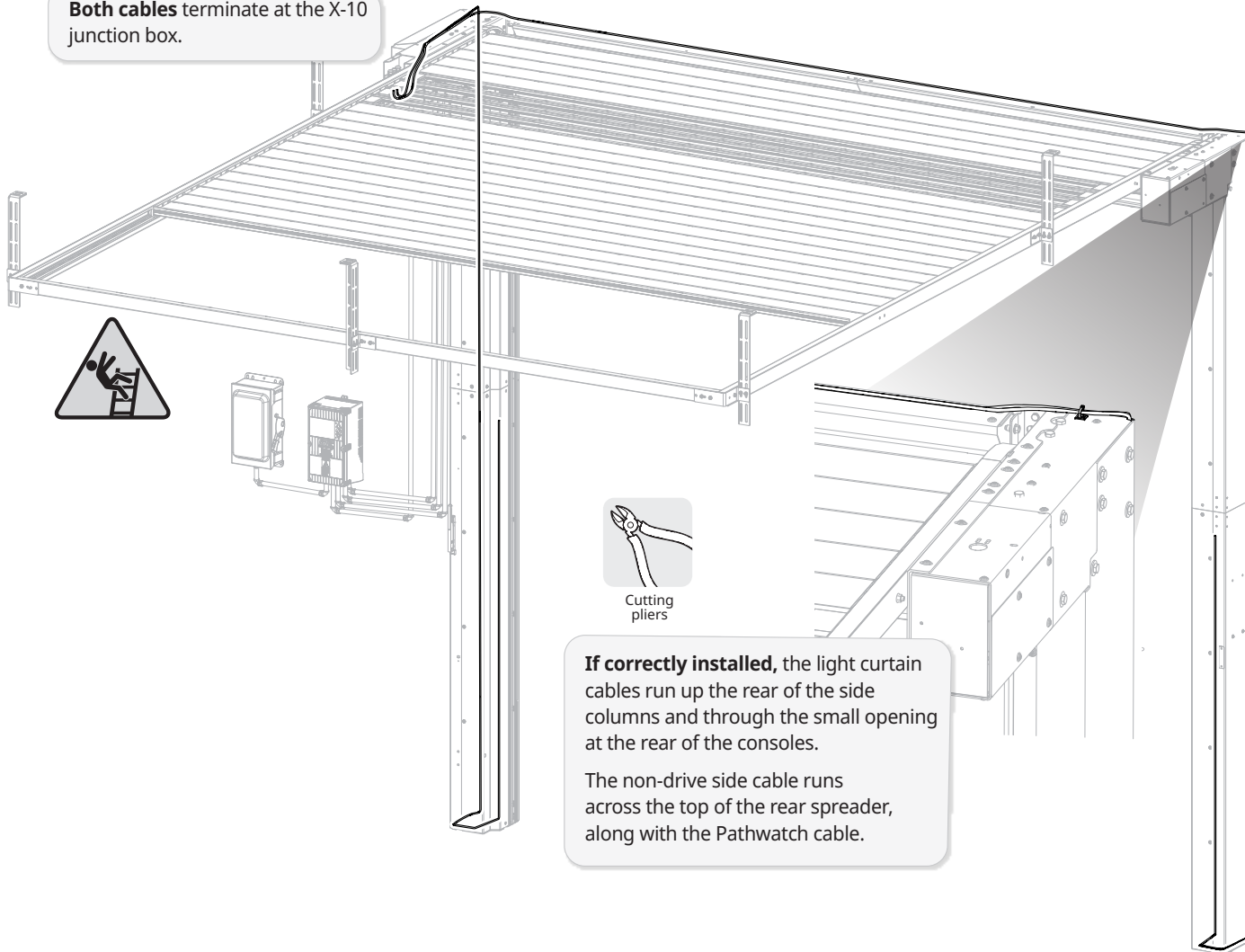


Cutting pliers

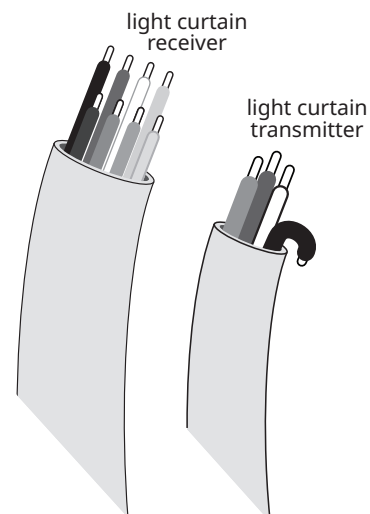


- 3 Remove the light curtain cables** from the drive side and non-drive side of the door.  
Cut cable ties, but leave the cables intact.

Both cables terminate at the X-10 junction box.

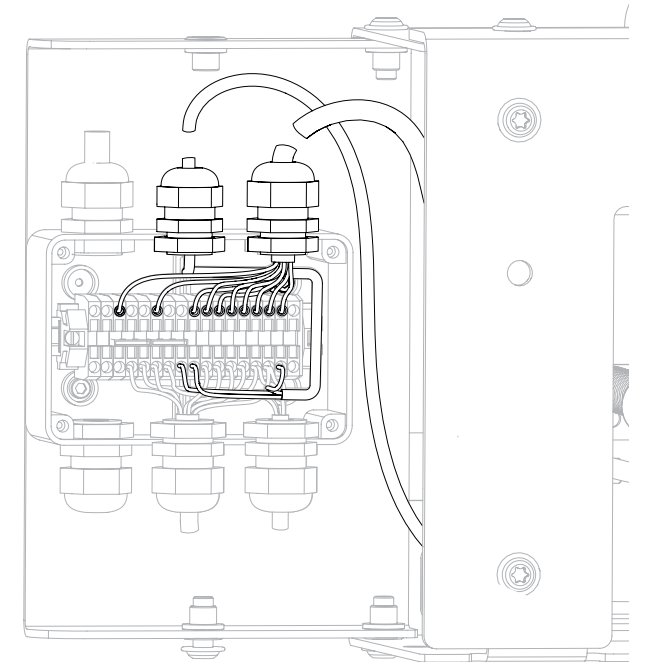


- 4 Discard** the light curtain receiver cable.  
**Keep** the light curtain transmitter cable.  
The white, black and blue wires will be spliced to the proximity sensor cable.

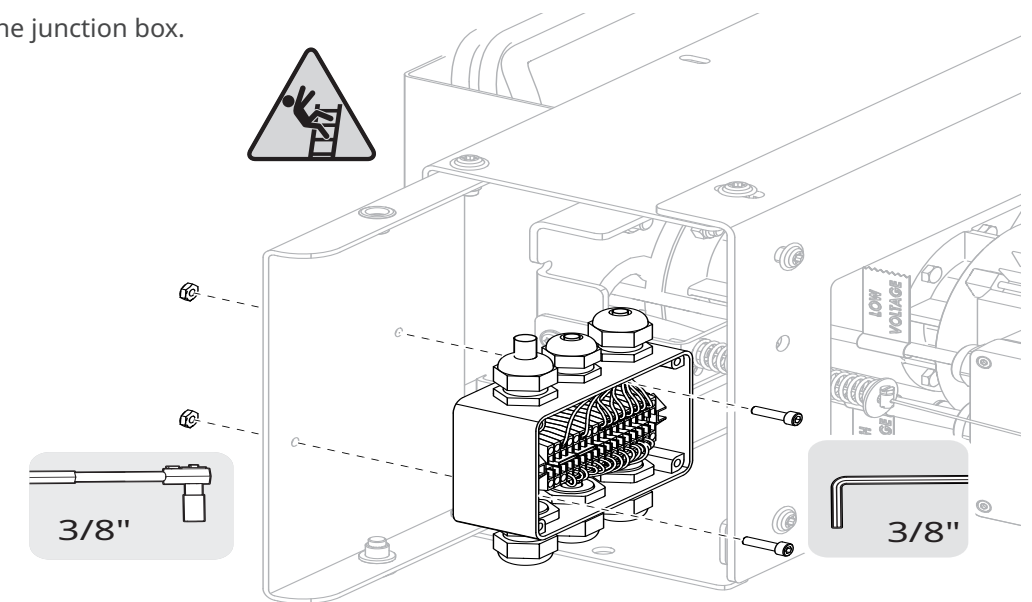


## Cut the X-10 and proximity sensor cables, remove the junction box, and splice the proximity sensor cable

- 1 Cut** the X-10 and proximity sensor cables at the X-10 junction box.



- 2 Remove** and discard the junction box.

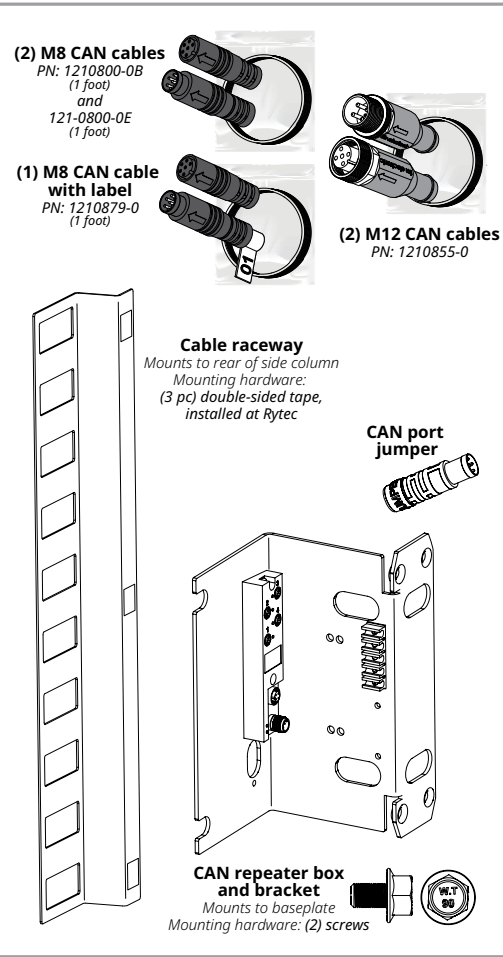




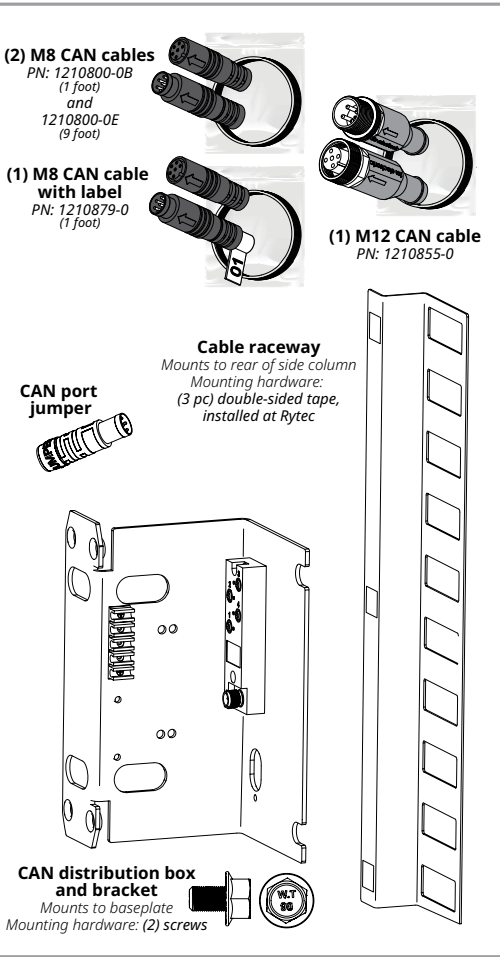


2 Get all parts from the kit for the drive side and non-drive side baseplates.

Drive side side column baseplate



Non-drive side side column baseplate



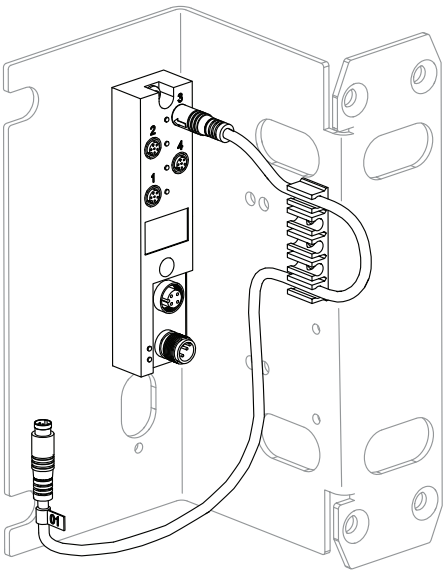
Parts shown are for a left-hand drive side door.

**NOTE:** CAN repeater boxes have two ports for M12 cables. In a Spiral LH, 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.

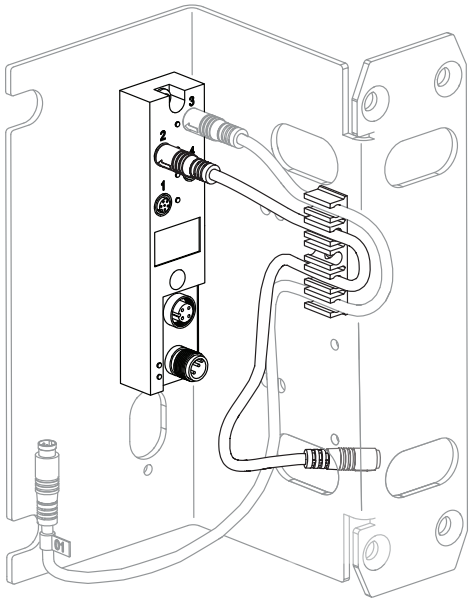
Do the next three steps BEFORE you install the brackets into the side column baseplates.

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.

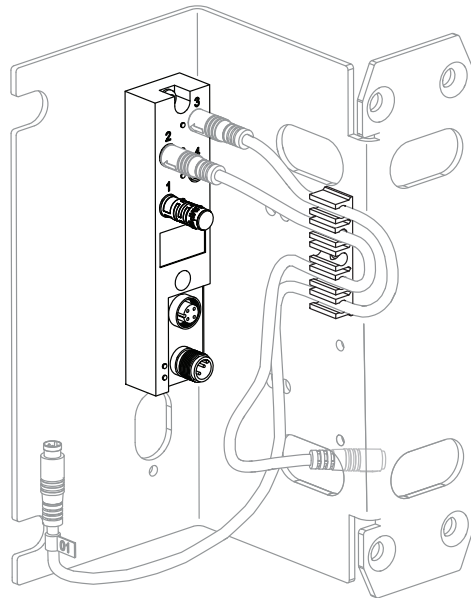


4 Install the other 1-foot M8 cables into **port 2** of the boxes on both brackets and through the second and fourth slots in the holders.

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



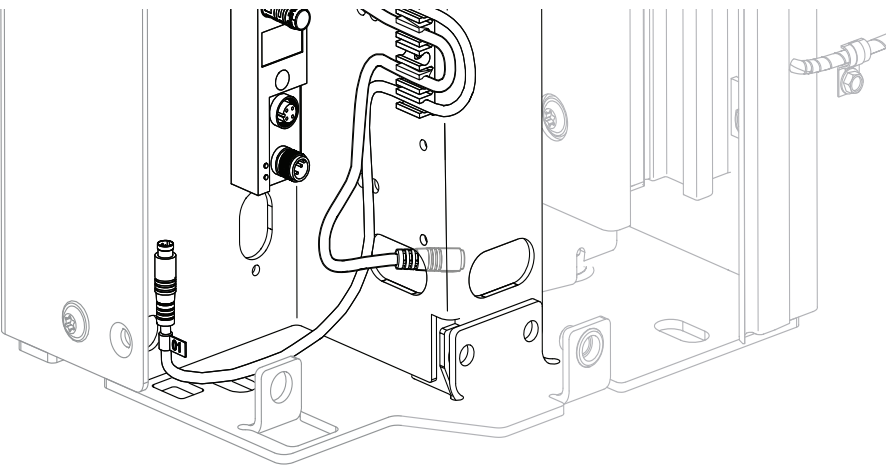
5 Install the jumper into **port 1** of the boxes on both brackets.



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

**IMPORTANT**

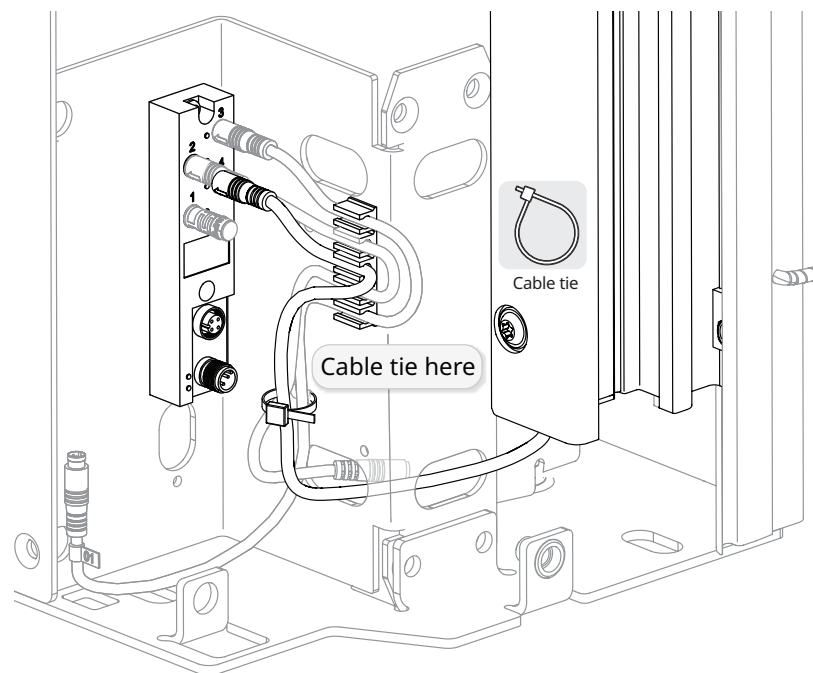
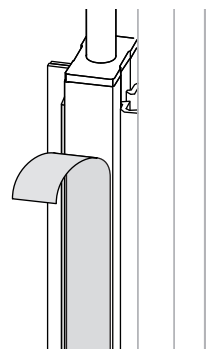
**DO NOT bolt them in place.**  
You will secure them  
in place **later**.



**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.



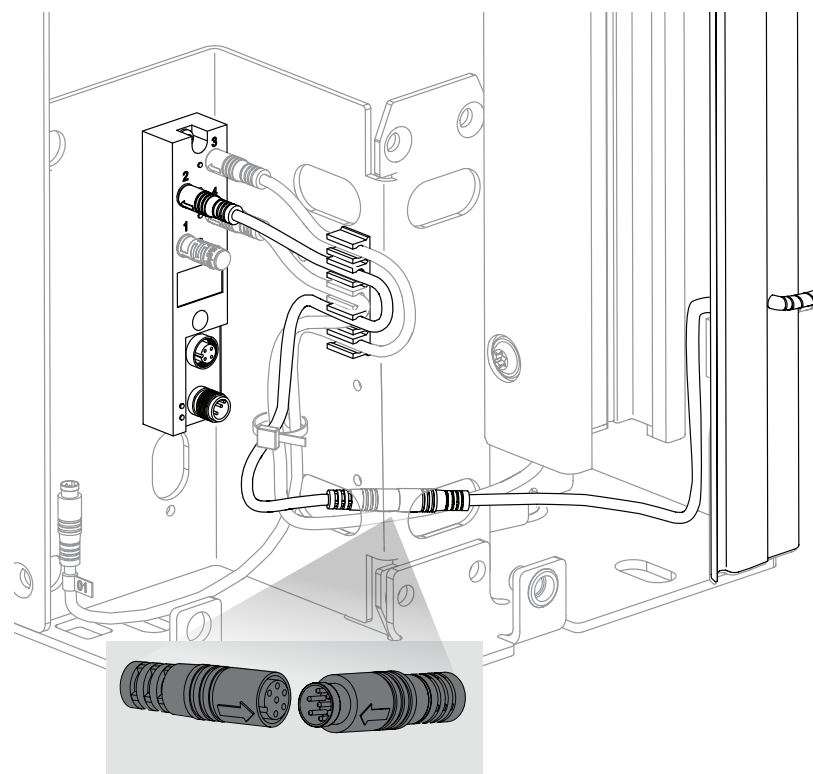
**8** **Route** the cable from the jamb mounted SmartSurround™ light curtain down the back channel of the vertical track **BEHIND and separate from the door track** to the floor of the baseplate.

**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.



**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.

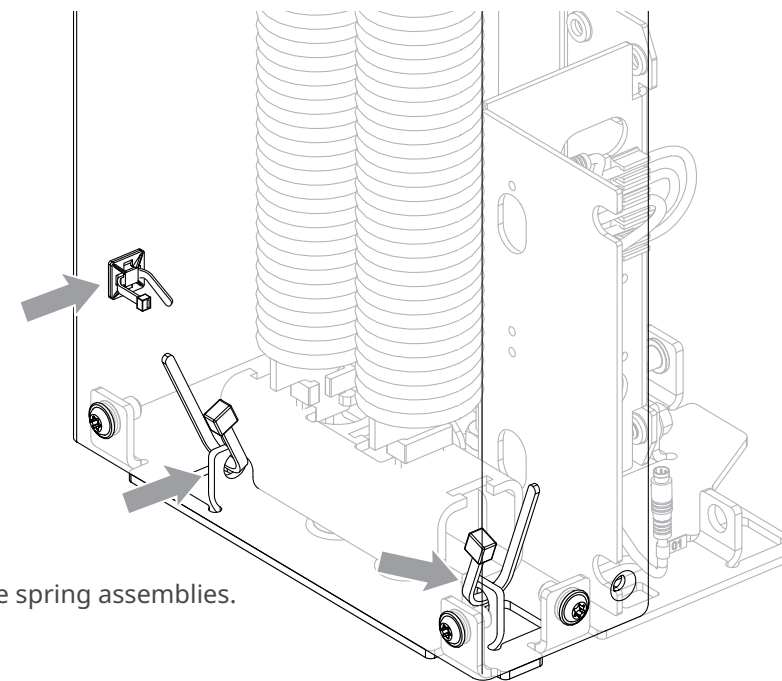
**Also place** a cable tie and anchor against the rear wall of each side column, near the outer wall and 4 inches above the base plate

**IMPORTANT**

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

**IMPORTANT**

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



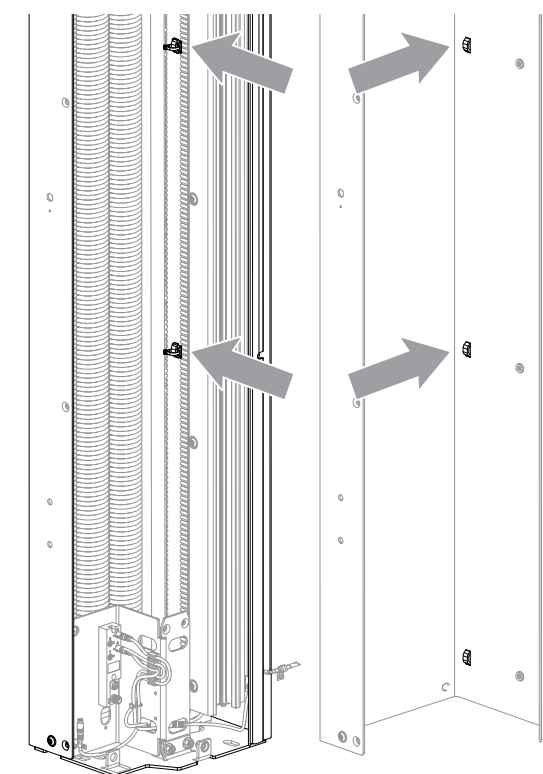
**10** **Space** cable ties and anchors every two feet up the rear wall of each side column.

**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.

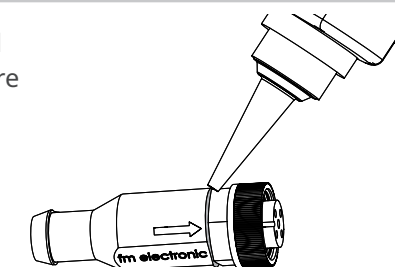
**IMPORTANT**

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



**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**

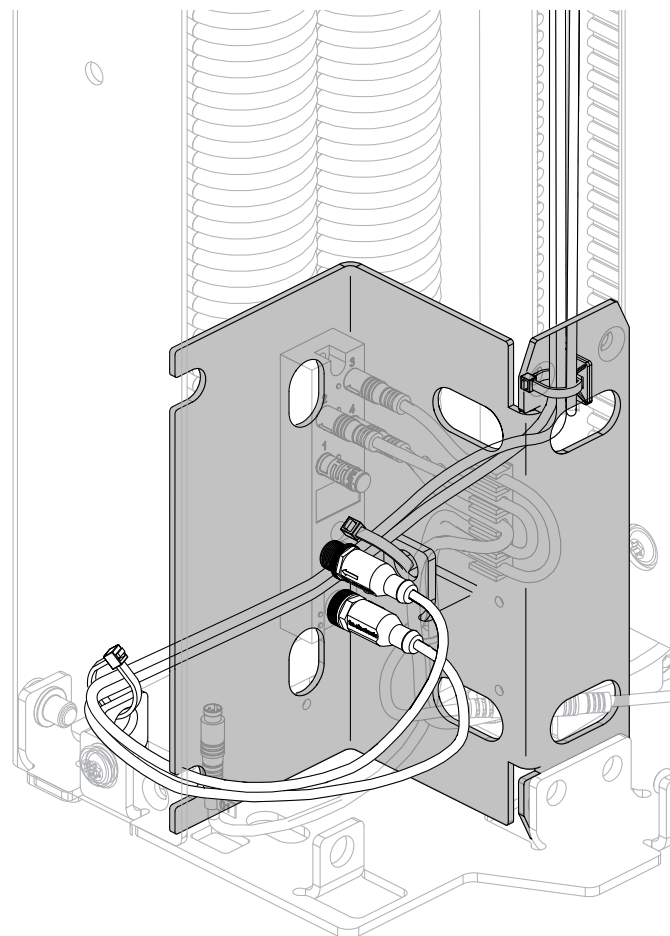
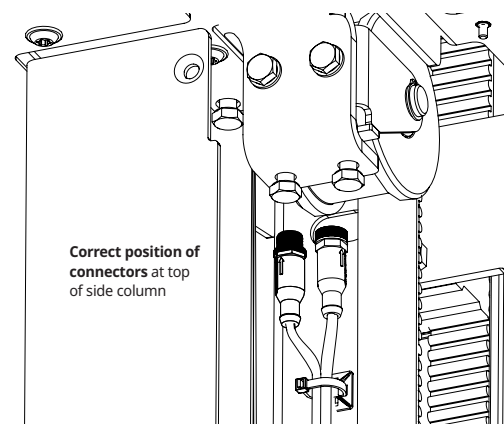


- 11** Plug in the two M12 cables, run them through the opening at the bottom front of the bracket, and through the cable ties to the top of the side column.

### IMPORTANT

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

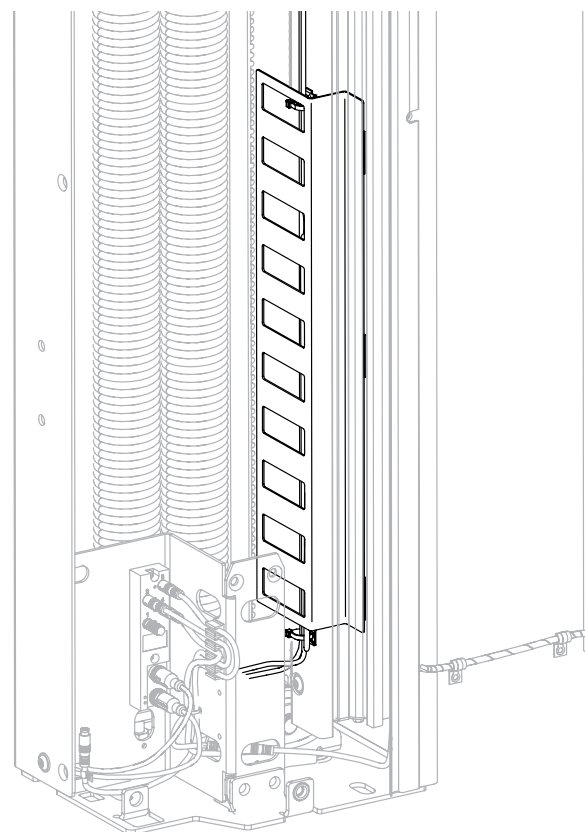
- In the drive side, the cable that terminates in a **male connector** connects via the short M12 cable to the CAN repeater in the console.
- The cable that terminates in a **female connector** connects to the M12 cable across the rear spreader.



- 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.

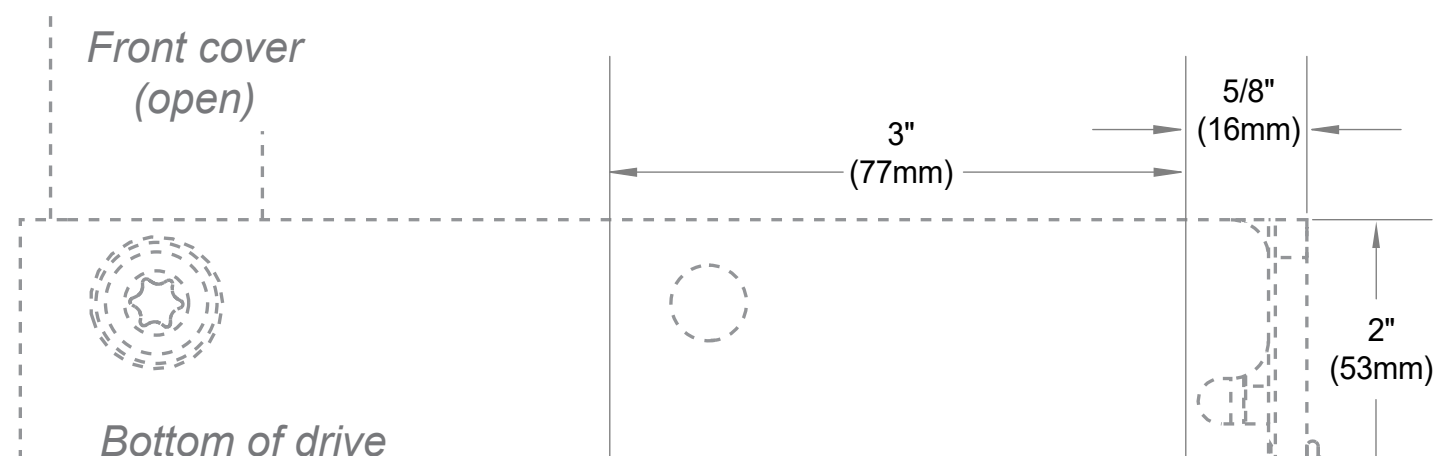
If there is extra length in the cables, fold it over and slide it behind the raceway.

Set all cable anchors tight.



Template #3:  
holes for CAN  
repeater in console

This template  
is used in Step 1  
on page 26

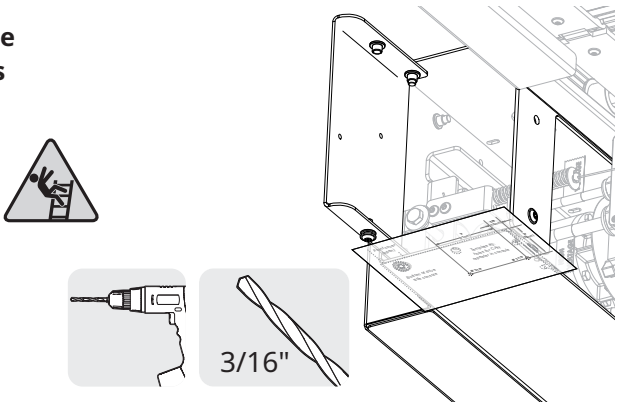


**IMPORTANT** Before using template verify printed dimensions match shown dimensions.



How to install the head assembly CAN components and connect the side column CAN bus cables across the rear spreader

1 Cut out and place template #3 from the previous page on the bottom of the drive side console, then drill holes for the bolts that secure the CAN repeater box.



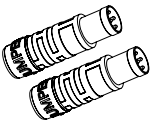
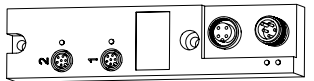
2 Get all parts from the kit for the drive side console.  
**NOTE:** The kit includes an **extra bolt and nut** for the CAN repeater box in the console. Discard them if they are not needed.



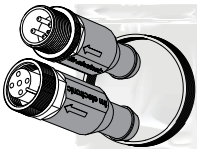
The flying lead is the only M12 cable with a connector on one end and bare wires on the other.

Drive side console

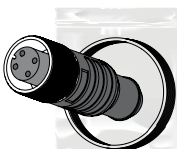
**CAN repeater box**  
Mounts inside console  
Mounting hardware:  
(3) bolts and nuts



(2) CAN port jumpers

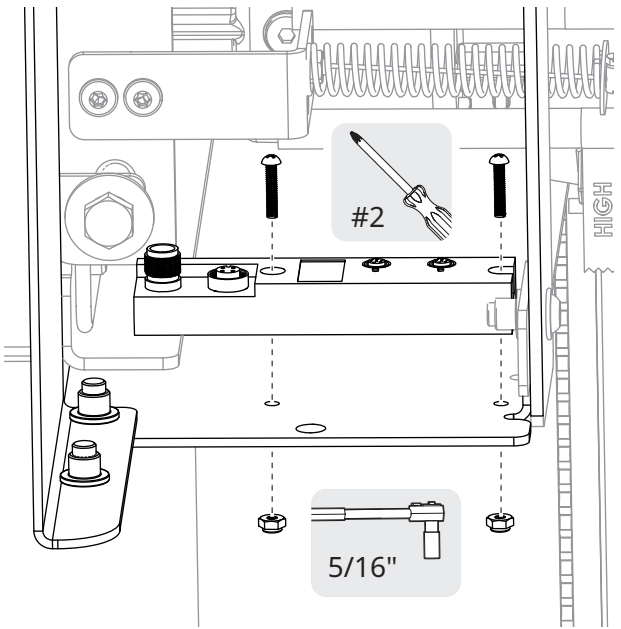


(2) M12 CAN cable  
PN: 1210855-0X  
one long, one short



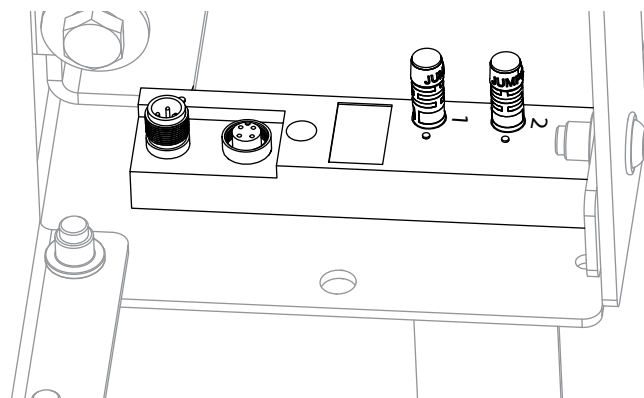
(1) M12 CAN flying lead  
Cable to controller  
PN: 1210856-0

3 Install the CAN repeater into the drive side console.



Back of Template #3  
Intentionally left blank

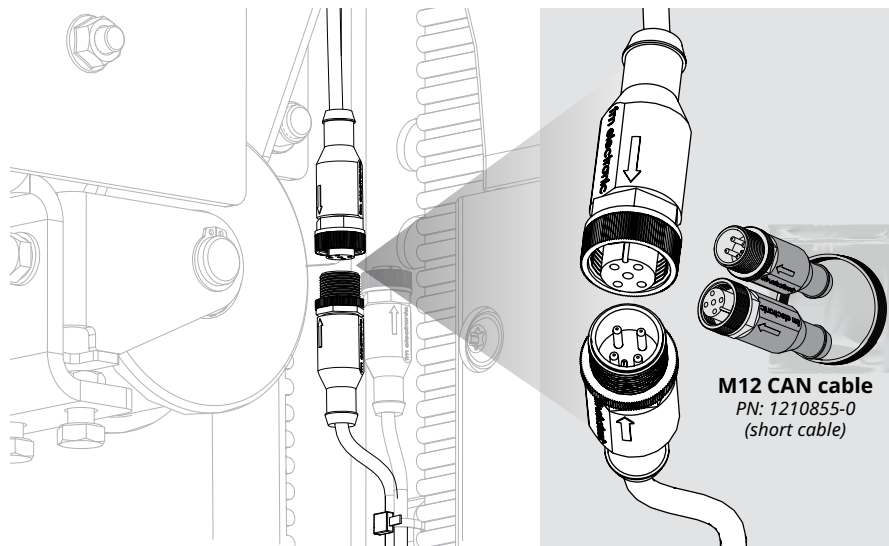
**4** Plug the jumpers into **port 1** and **port 2**.



**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.

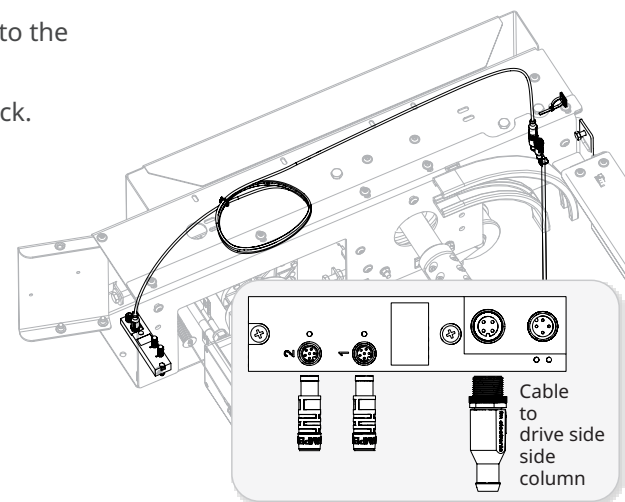
### IMPORTANT

**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.

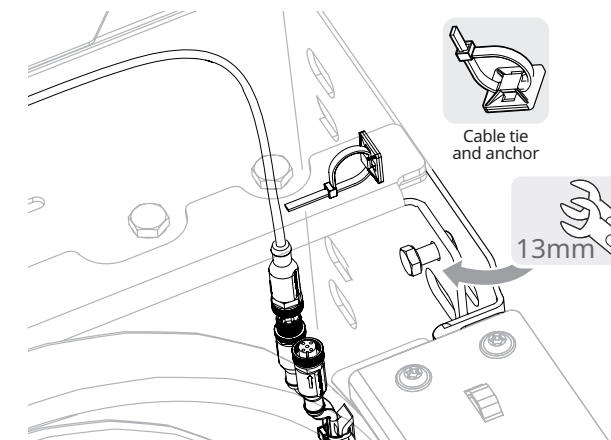


**6** **Connect** the male M12 connector for the short cable to the CAN repeater in the head assembly

**Loop** extra cable length and **tie** to minimize slack.

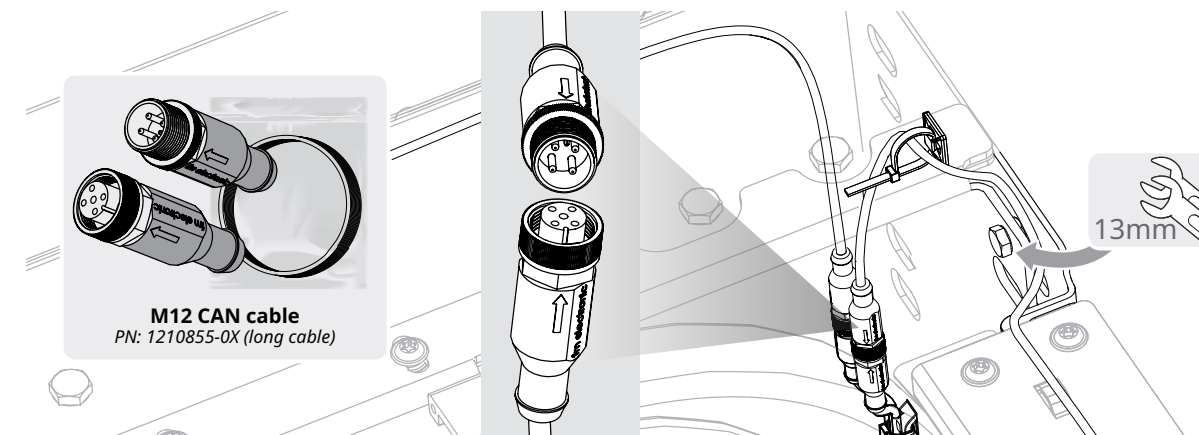


**7** Inside **both consoles**, **install** a cable tie and anchor on the rear wall of the console, and **loosen** the rear hex adjustment screw.



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

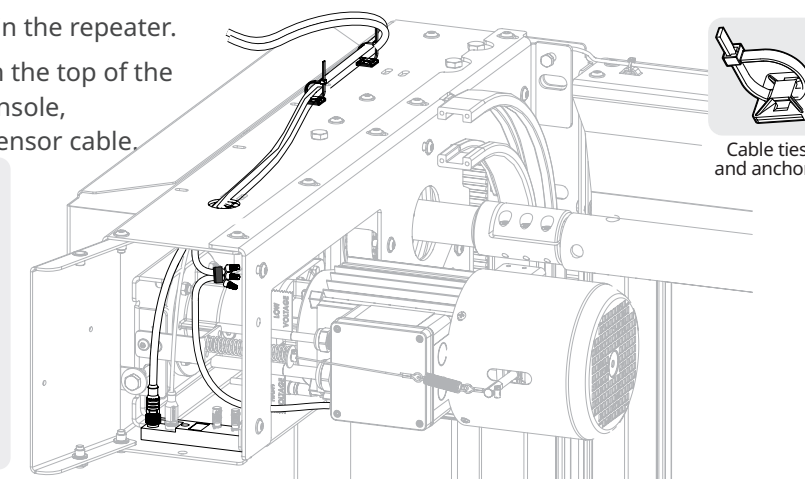
- Inside the drive side console, **push** the cable through the cable tie and **connect** the male M12 connector on the cable to the female M12 connector in the side column.
- Loop** the cable over the rear hex adjustment screw and **re-tighten the screw** to original setting.
- Follow these steps** inside the non-drive side console, connecting the female M12 connector on the cable to the male M12 connector in the side column.



**9** Get the flying lead cable to the controller. **THIS IS THE ONLY M12 CABLE** with a single connector on one end and bare wires on the other.

**Plug** the cable into the CAN port in the repeater.

**Run** the cable through the hole in the top of the console and to the back of the console, parallel to the spliced proximity sensor cable.



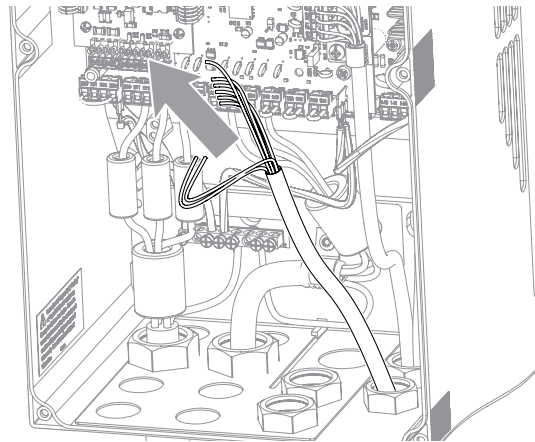
**10** Tape the flying lead cable and proximity sensor cable securely to the X-10 cable.

Use the X-10 cable to fish the other two cables through the conduit and into the controller.

If necessary, loosen the conduit at curve points or connections so that the cables move freely.

If necessary, use a fish tape instead of the X-10 cable.

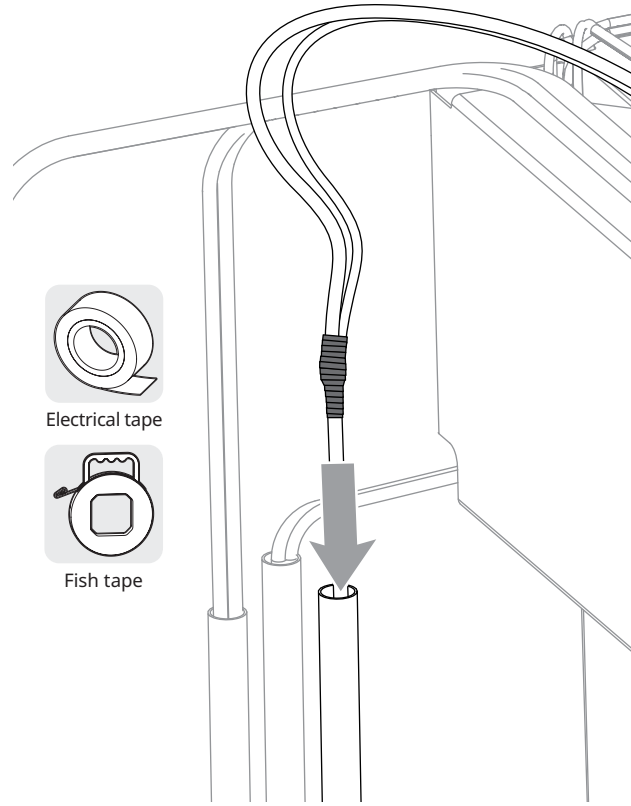
Discard the X-10 cable when done.



Electrical tape



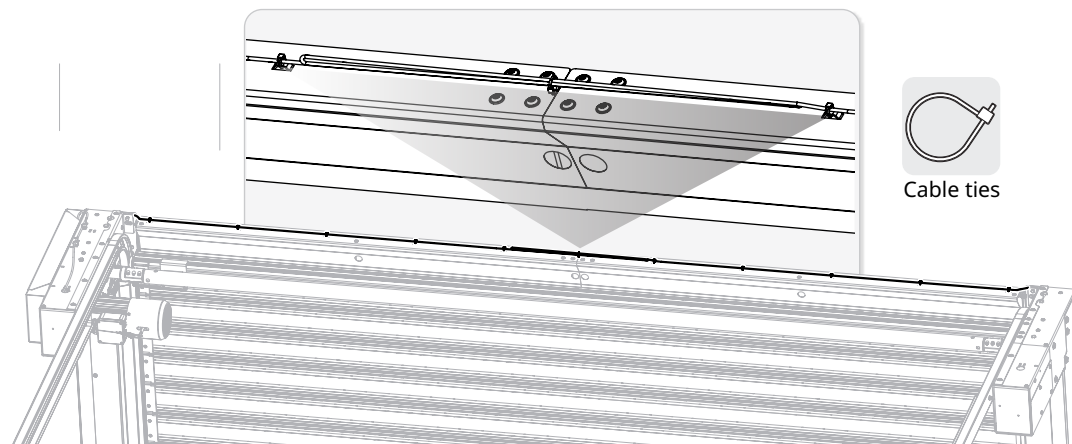
Fish tape



**11** **IMPORTANT**

This step should be done **AFTER** power has been restored, the CAN bus system has been synced, limits have been set, and the door is in the fully closed position. **Make sure** the cable stays clear of the door track when the door is closing.

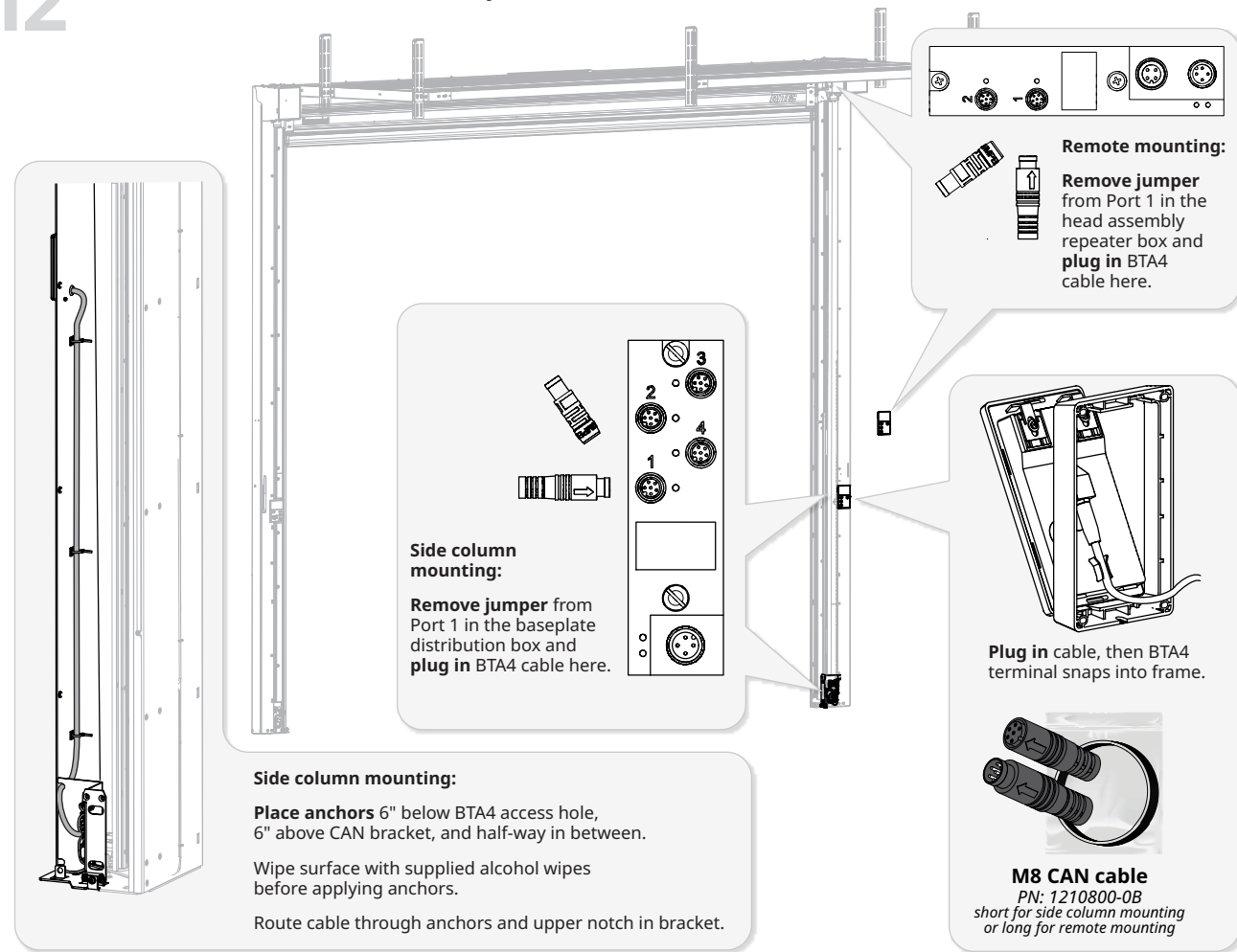
- The M12 cable will probably be longer than the rear spreader.
- Leave a small amount of slack in both consoles and loop the extra length at the center of the rear spreader.
- Secure the loops with cable ties, then secure the cable to the rear spreader at each anchor point on the spreader.



Cable ties

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

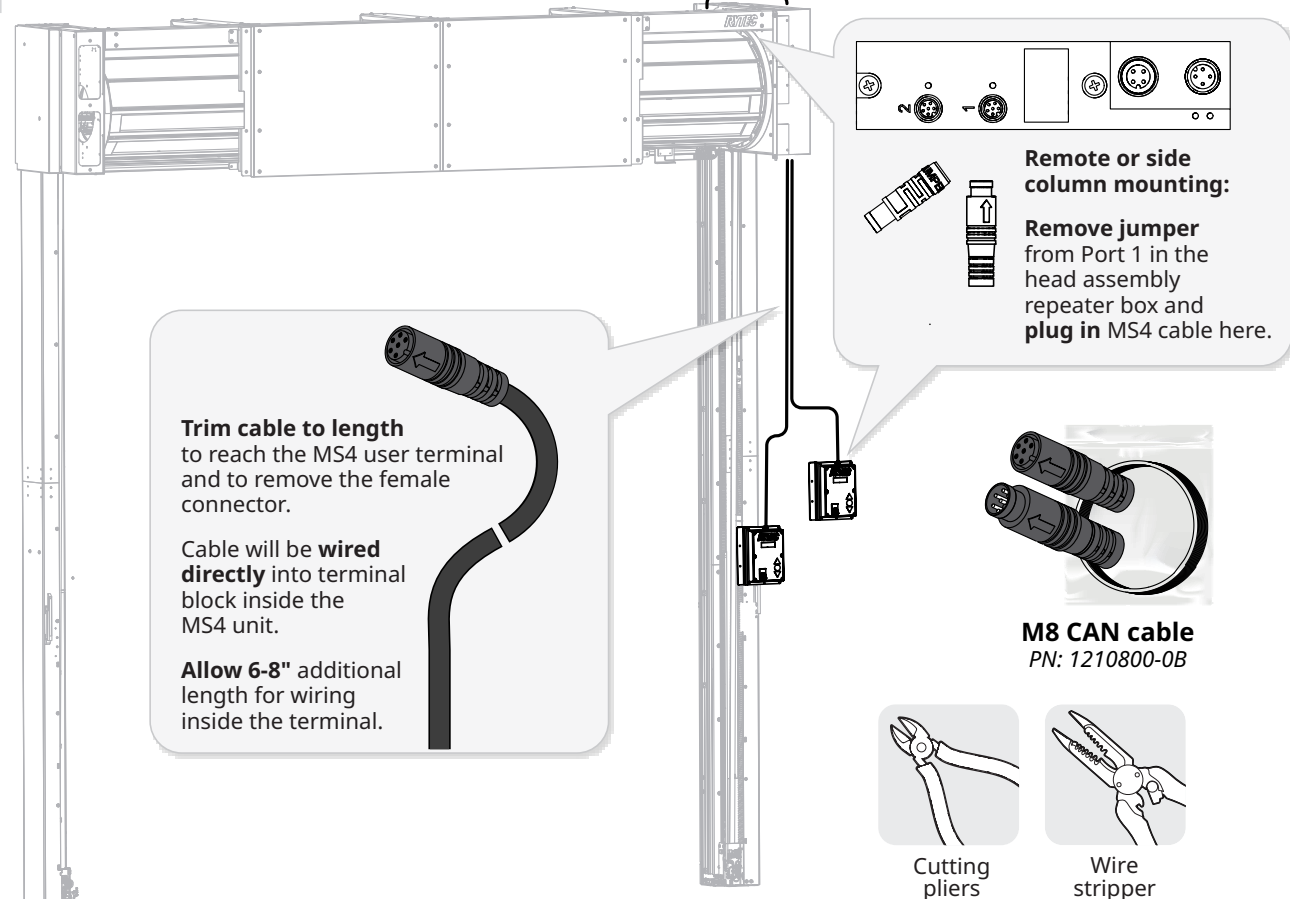
**12** Connect the BTA4 to the CAN bus system.



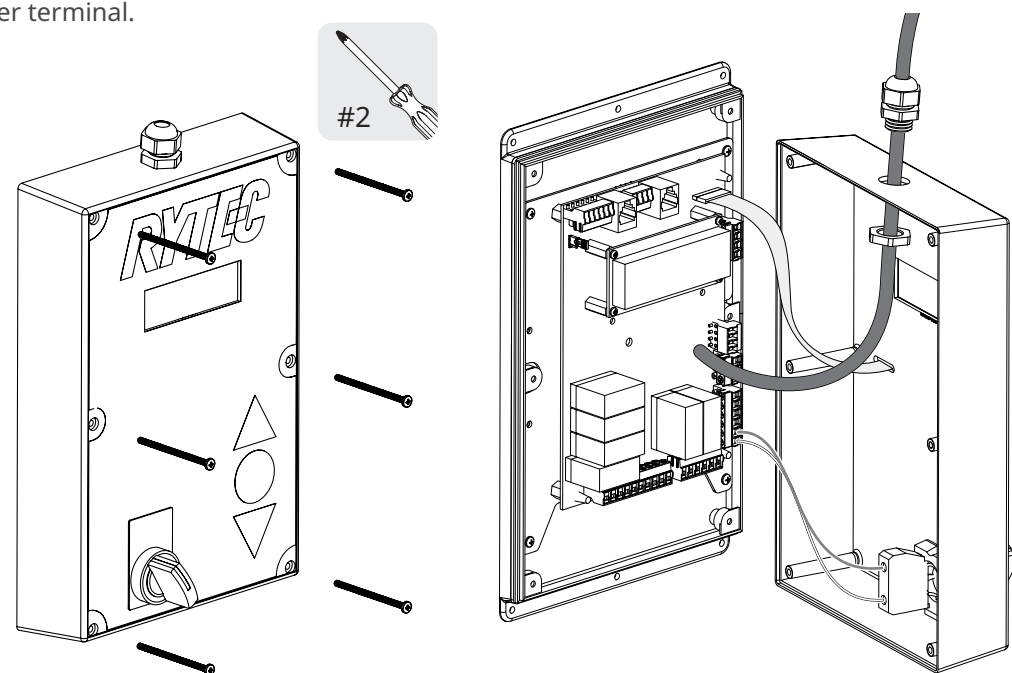


# OPTIONAL: connect the MS4 user terminal to the CAN bus system

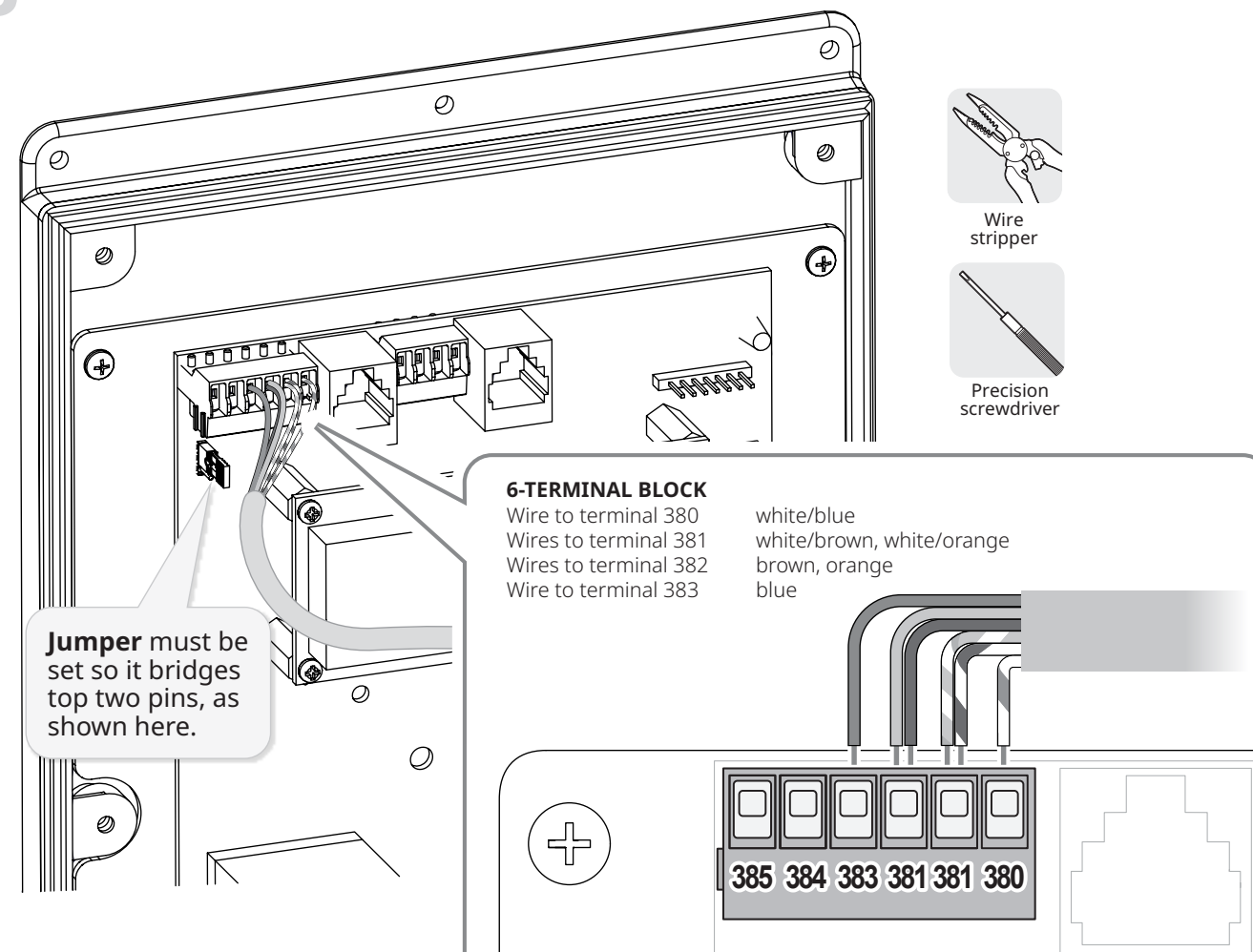
**1** Connect the M8 flying lead cable to the head assembly repeater box and **route** it to the MS4 user terminal.



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



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



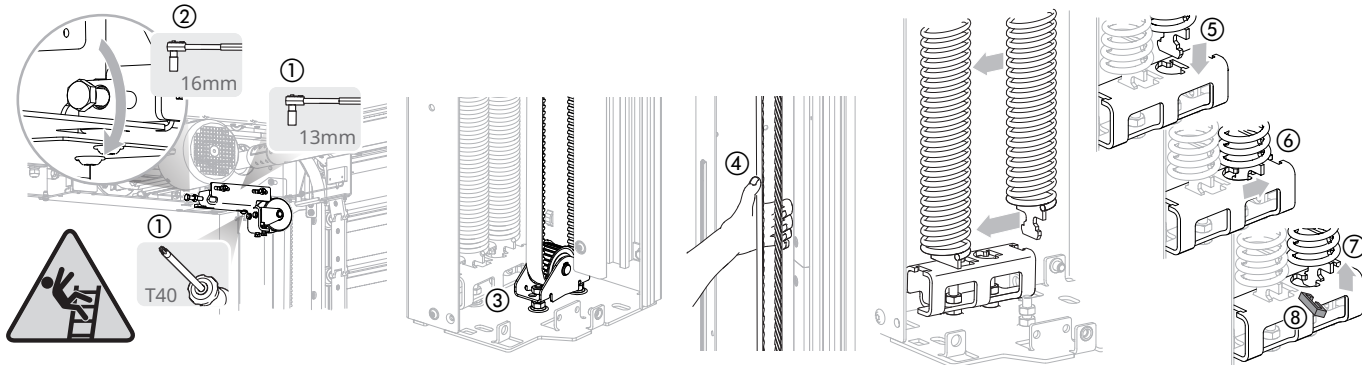
**4** Tighten the cord grip, **replace** the cover and **reinstall** the six screws.

## Finish the installation

5

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

- 1: **Tighten** the front nut on the baseplate pulley assembly to its original position ③.
- 2: **Loosen** the restraining bolts on the idler bracket ①, then **turn** the adjustment screw ② **clockwise** until it requires considerable effort to manually bring the two legs of the belt together ④.
- 3: **Push down** on the bottom of the spring, **slide** the spring tab into the wide slot ⑤ and through the narrow slot ⑥, then **push up** to set it into the retaining slot ⑦. **If door has tab collars ⑧**, reinstall.

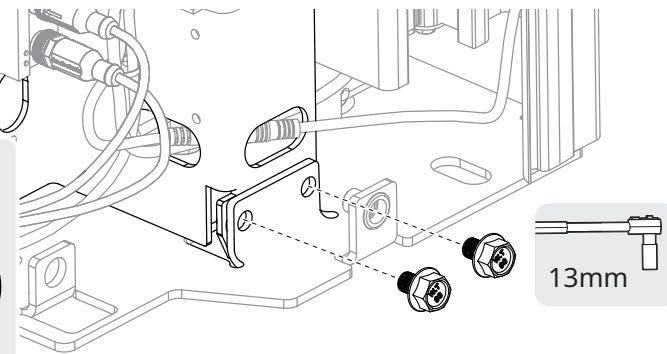
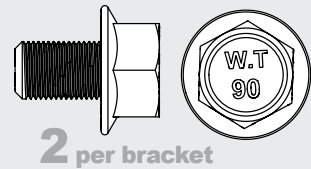


6

**Secure** CAN brackets in place

**FROM KIT**

Hardware shown actual size



7

**Reinstall** the side column covers.

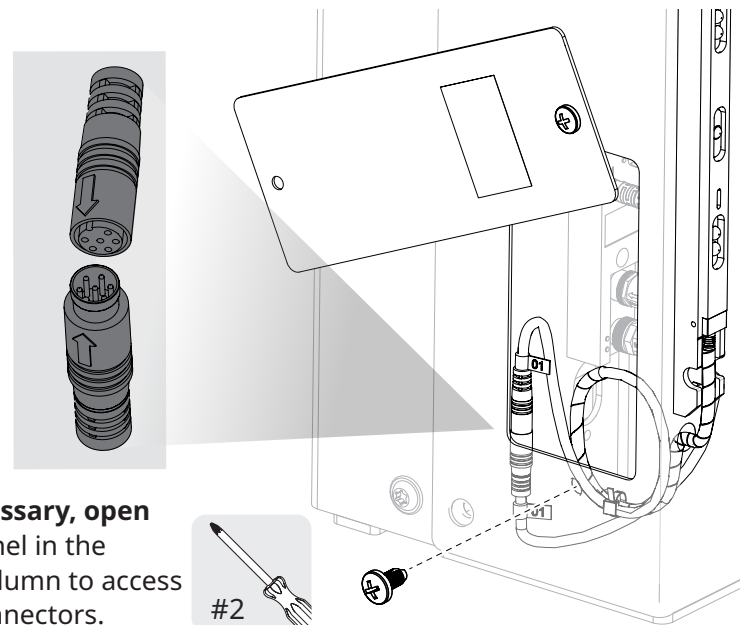
**INSIDER'S TIP**

- **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.

**If necessary, open** the panel in the side column to access the connectors.



## How to wire the CAN bus and proximity sensor cables 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.

Tools  
you will  
need



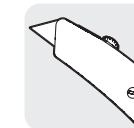
Precision  
screwdriver



Wire tool



Cutting  
pliers

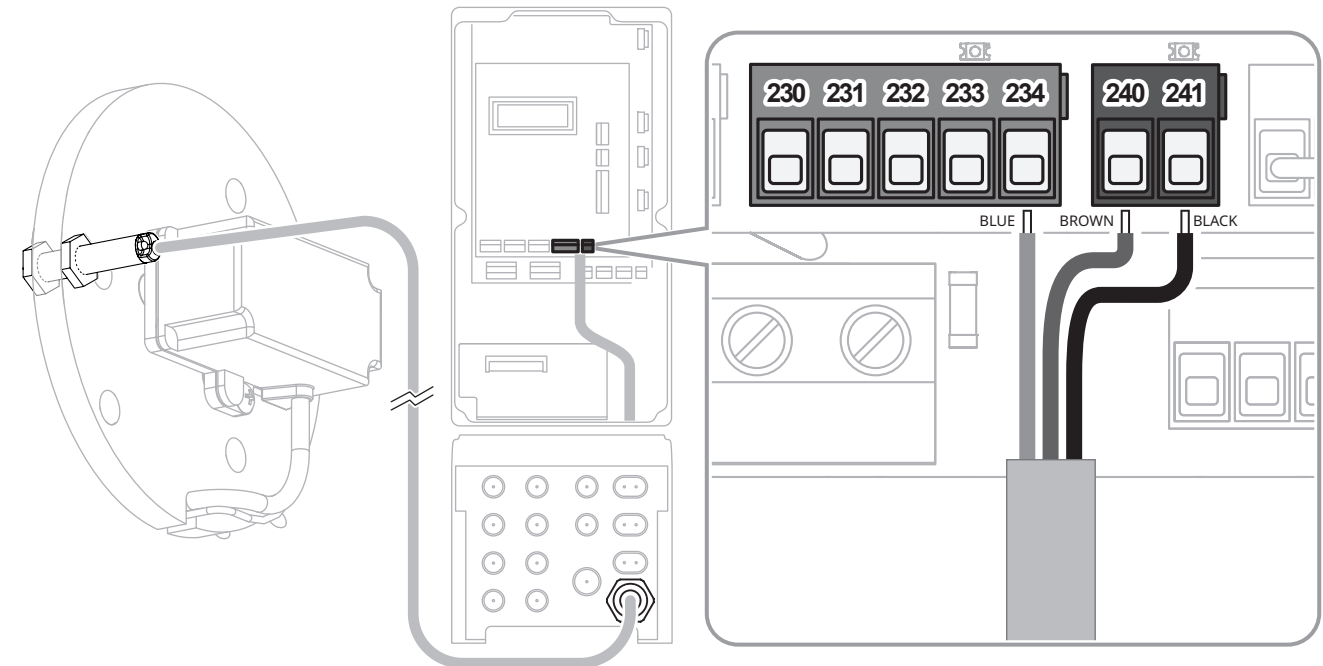


Utility  
knife

1

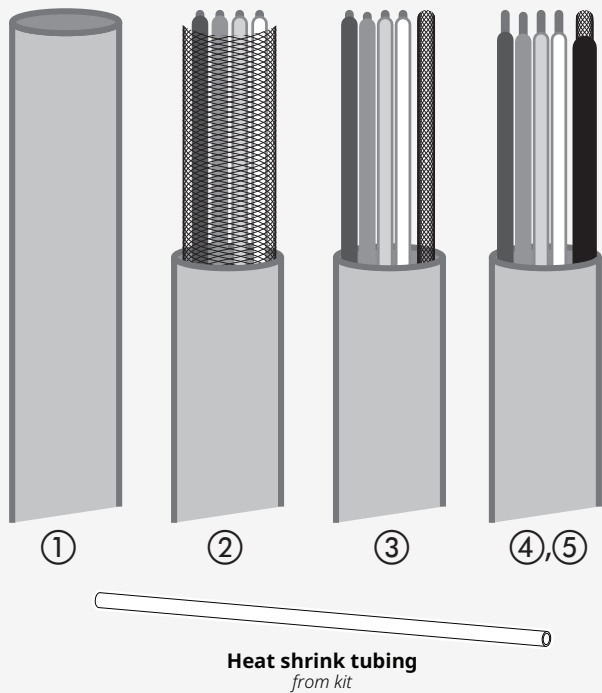
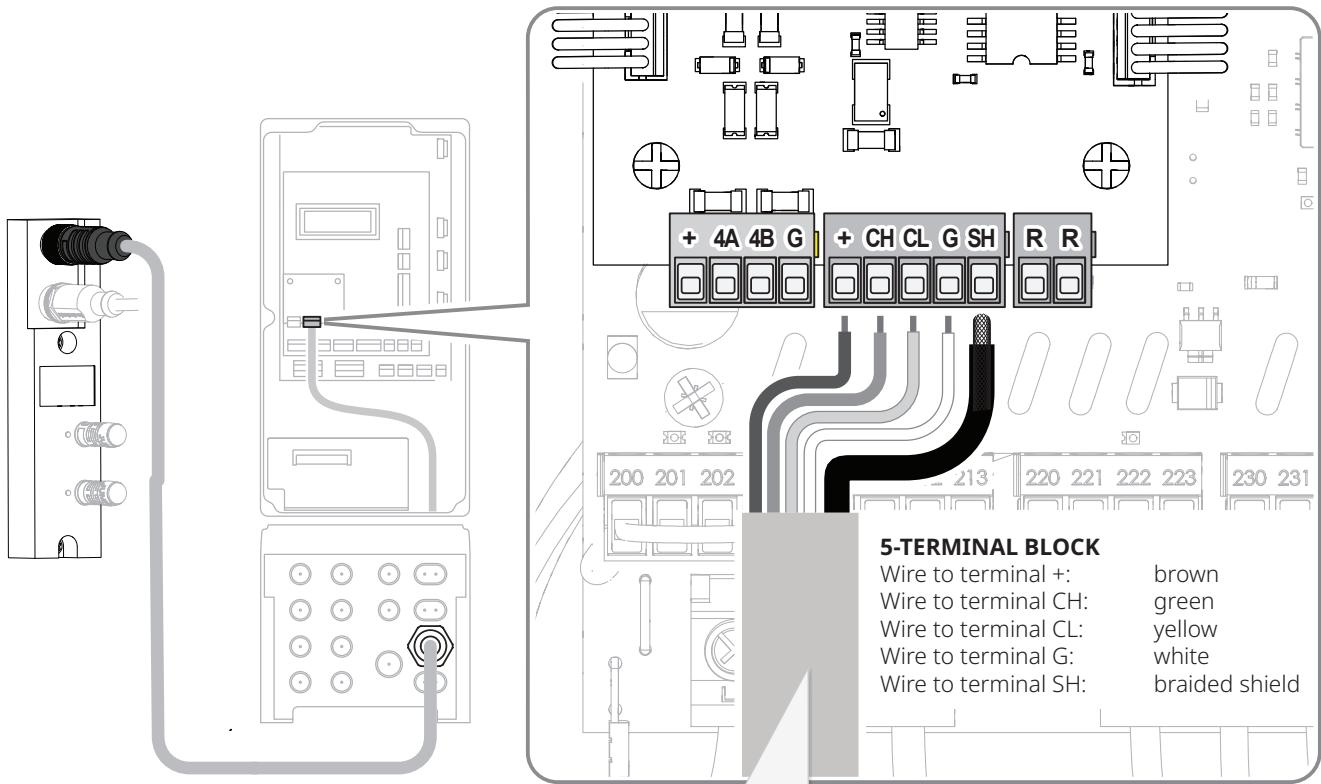
**Connect** the wires from the proximity sensor.  
**Shielding:** unshielded

24 AWG



2 **Connect** the CAN bus wiring.  
**Shielding:** wire mesh

20 AWG



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

**To ensure a tight contact:**

- 1 **Trim** CAN bus cable so it reaches com board, plus six inches (6") additional length.
- 2 **Trim** jacket to expose wire mesh shielding.

**IMPORTANT** **DO NOT** cut through shielding.

- 3 **Twist** shielding into fifth wire to terminal block.

**IMPORTANT** **Make sure** shielding is twisted tight enough to fit into terminal.

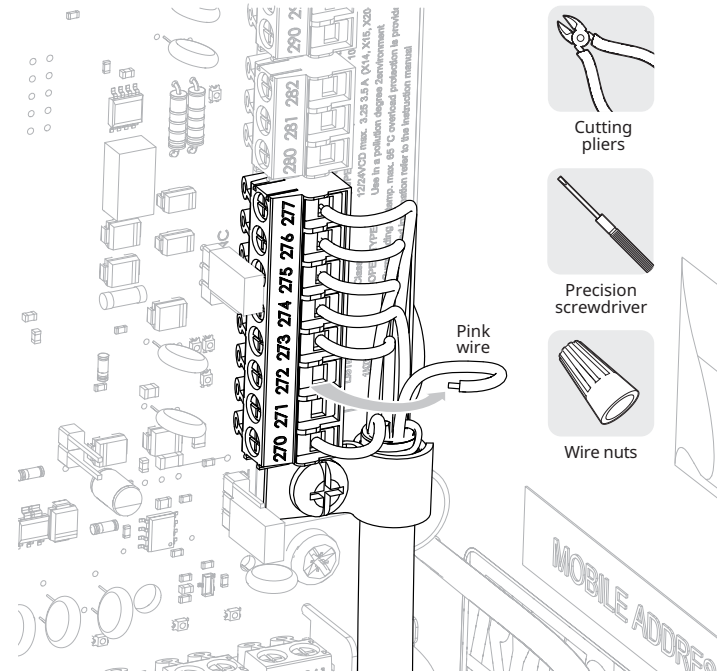
- 4 **Use** heat shrink tubing from kit to insulate the shielding so only one quarter inch (1/4") is exposed.
- 5 **Trim** other wires to expose one quarter inch (1/4") of clean copper.

3 **Disable the reversing edge.**

**Remove** the pink wire from terminal 272

**Trim** the pink wire

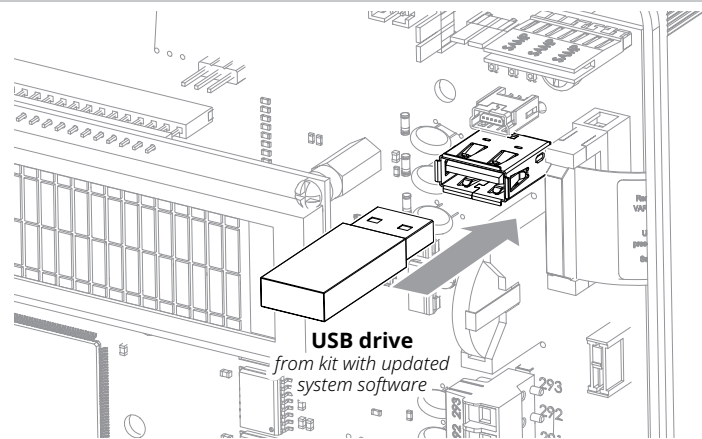
**Terminate** the pink wire with at a wire nut.



4 **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.

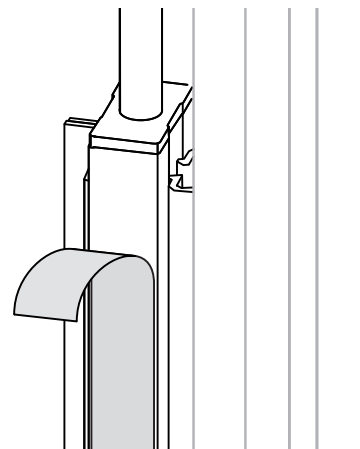


5 **IMPORTANT**

**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.

**INSIDER'S TIP**

**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.



6 **Restore** power to the door.



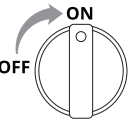
# How to update the system software, sync the SmartSurround™ system to the controller and set limits

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


Do This

Result


1




Turn on power to controller  
The door starts in run mode.



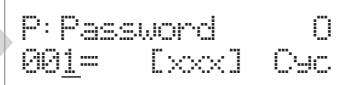
2




until the parameter screen displays




You are in Parameter mode.  
Go to parameter 999.




3



2X to reach parameter P:999




The Password screen displays.




Do This

Result


4




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




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




5




16X to set value to hexadecimal 10




Set the value to 10 (Service level password).




6




until question mark changes to checkmark (value saved)




The Service level password is saved.




7



1X to move cursor to left (parameters)



You can now go to parameter P:989 to update the system software.




## Next: update the system software



Do This

Result

1




until you reach parameter P:989




P: Prog. update S 989=select \*


2




1X to go to the value side




**NOTE: the cursor may not respond immediately** when you press the RESET button.  
It can take up to several minutes for the USB drive to be recognized by the controller.



until the software version displays




The software update file name scrolls  
Example: TST FUR3-RY V02-03.XX.bin





Do This

Result





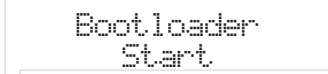
4



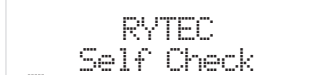
until download begins



blinking dot indicates software is downloading, then




when update is complete, door returns to run mode



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

**THIS IS NORMAL**






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


Do This

Result

1




  
  


until the parameter screen displays




You are in Parameter mode.

2




  
  


2X to reach parameter P:999

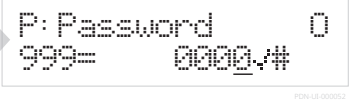


The Password parameter P:999 screen displays.

3

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






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




Do This

Result

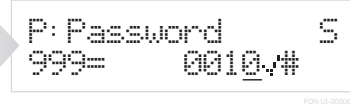
4

16X to set value to hexadecimal 10

until question mark changes to checkmark (value saved)



The Service level password is saved.




6

The controller automatically moves to parameter P:990.




Do This

Result


6

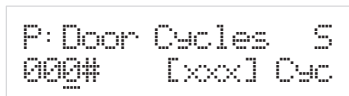
until you set the value back to the original value

until question mark changes to checkmark (value saved)






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



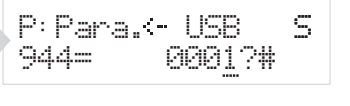
Do This

Result

11




  
  


3X to go to the first file




- 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 pass the value of 2. Go to step 19.


12

until blinking dot displays






blinking dot indicates software is downloading, then




checkmark indicates download is complete

13




  
  


1X to go to the next file

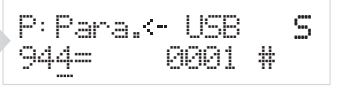


- If there are more files, **repeat the process until all files have been downloaded.**
- If there are no more parameter files**, the download is complete. Exit the parameter.

14

1X to move cursor to left (parameters)






Next: reset defaults and parameter for the new system software




Do This

Result




1

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

1X to set the value to 1


until question mark changes to checkmark (value saved)

Do This




Result

4

The controller resets the factory defaults.



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




  
  


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


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

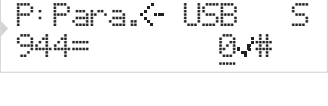
until you reach parameter P:944



10

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



1072471-0 • REV 02 • 04/22

33

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







2



  


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







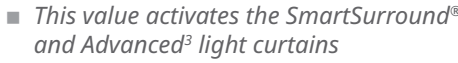
3

4X to set the value to 4










Do This


Result

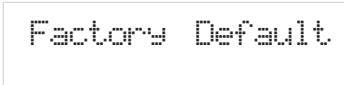
4


  



to save the value












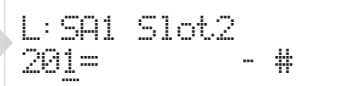



5

1X to move cursor to left (parameters)









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

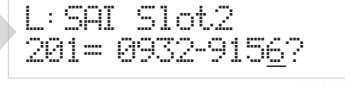
Result

1

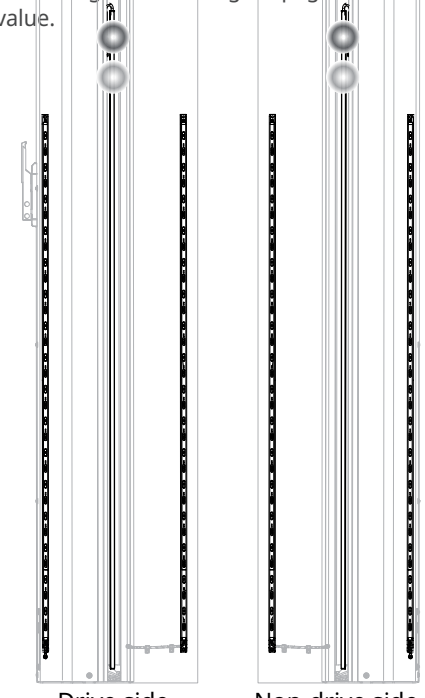
  


1X to show the first set of light curtains

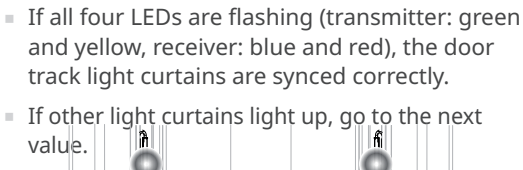


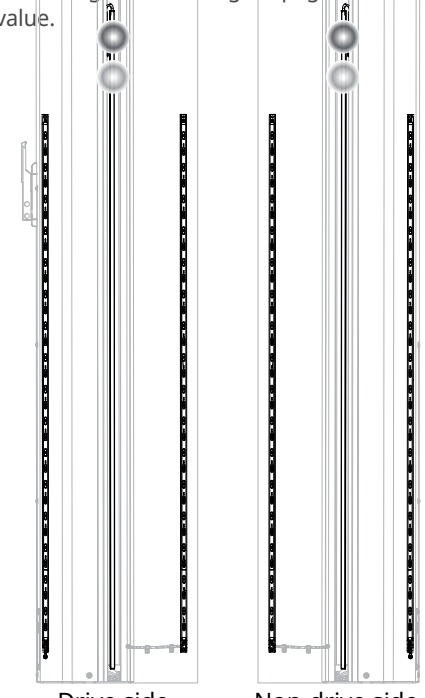


2



Check the Advanced³ light curtains mounted in the door tracks of both side columns.







Drive side

Non-drive side


Do This


Result


3

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











Re-check the light curtains.

4



  


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







5

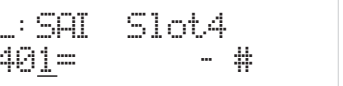
  


If the current selection **DOES** light the LEDs:  
until the setting is saved





6



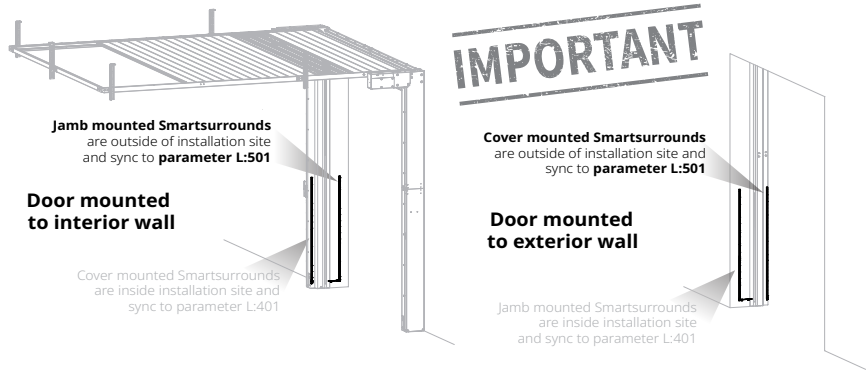
The controller moves to parameter L:401.



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.

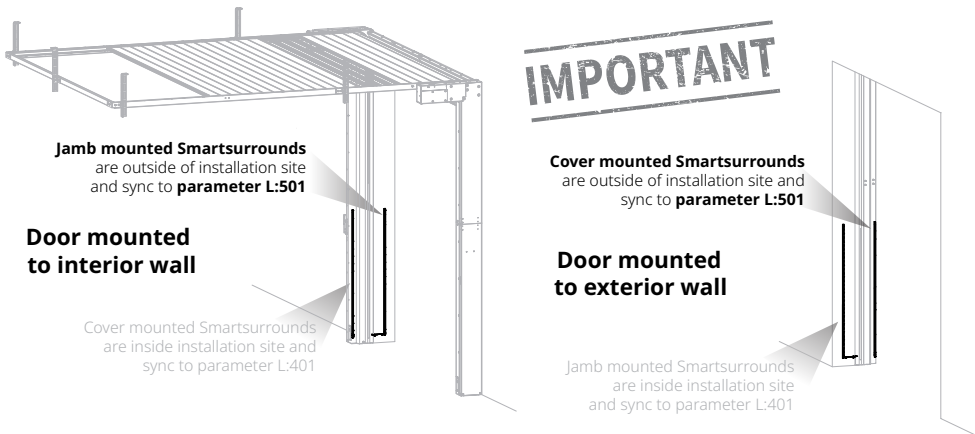
On doors that are mounted to **exterior walls**, the **jamb mounted SmartSurrounds™** are considered to be the inside light curtains and are assigned to parameter L:401.



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

1

1X to show the first set of light curtains

L: SAI Slot4  
401= 0932-9156?

2

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

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

Drive sideNon-drive side

3

1X to show the next set of light curtains

L: SAI Slot4  
401= 0992-9187?

Re-check the light curtains.

4

until the setting is saved

L: SAI Slot4  
401= 0992-9187✓

5

The controller moves to parameter L:501.

L: SAI Slot5  
501= - #

Do This

Result

1

1X to show the first set of light curtains

L: SAI Slot5  
501= 0932-9156?

2

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

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

Drive sideNon-drive side

3

1X to show the next set of light curtains

L: SAI Slot5  
501= 0923-9126?

Re-check the light curtains.

4

until the setting is saved

L: SAI Slot5  
501= 0923-9126✓

5

The controller ends at parameter P:000.




P: Door Cycles 5  
000# 0000 Cyc

To finish: set limits


Do This

Result

1




  
  


until the "Synchron." screen displays




Scrolling message:  
Hold Reset button if position OK

2




  
  


1X to start sequence



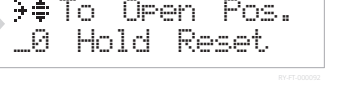
Scrolling message:  
Hold Reset button if position OK

3

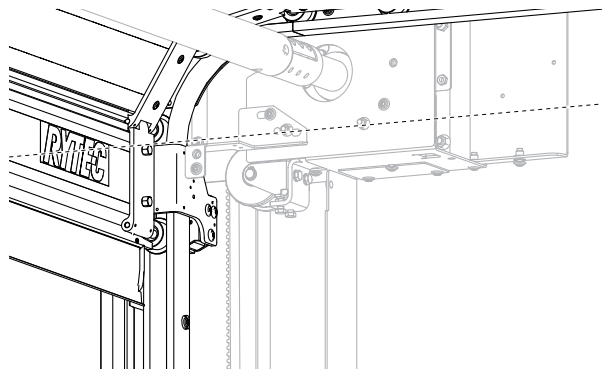
  
  


Set the open position.

until open height is correct






The top of the end brackets should align with the bottom of the radial guide track.



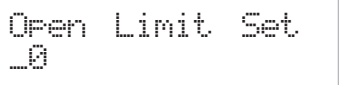
Do This

Result

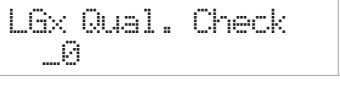
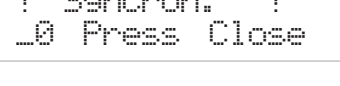
4

until "Open Limit Set" screen displays






when quality check is complete, you see these screens:

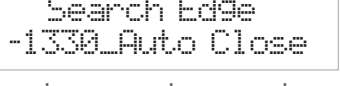
  


Scrolling message:  
Press Close button to begin


5




1X to start. The door panel closes.




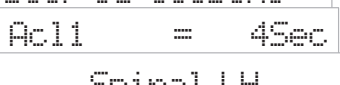

the door panel stops when it reaches the bottom of the light curtain, then you see:



6

1X to start auto-calibration

- 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

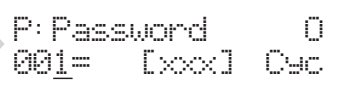
Do This

Result

1




  
  


until the parameter screen displays




You are in Parameter mode.

2




  
  


until parameter displays

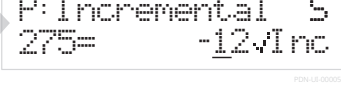


The default value at P:275 is -12.

3




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




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.

4




until new value displays




IMPORTANT

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

5




  
  


until question mark changes to checkmark (value saved)

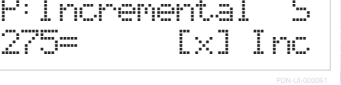


The new value is saved.




6


1X to move cursor to left (parameters)



7

until door returns to run mode

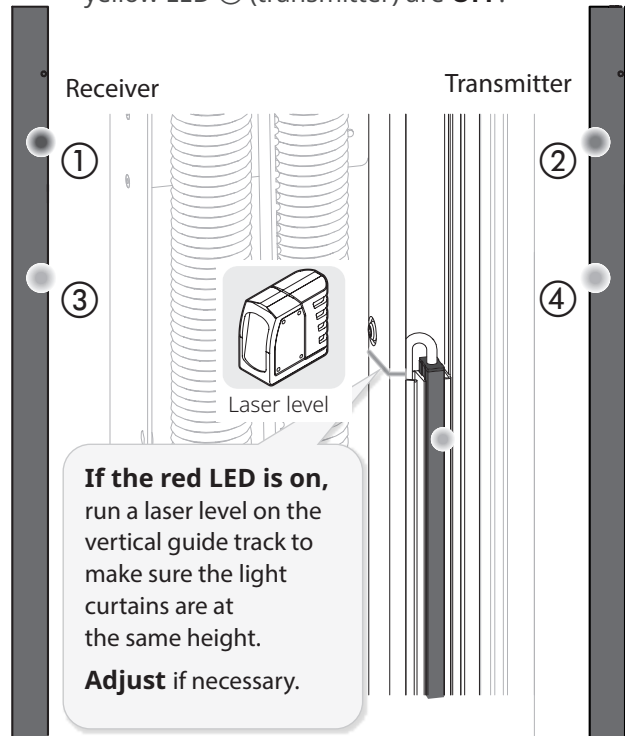


1072471-0 • REV 02 • 04/22

36

## How to test the door

- 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**.

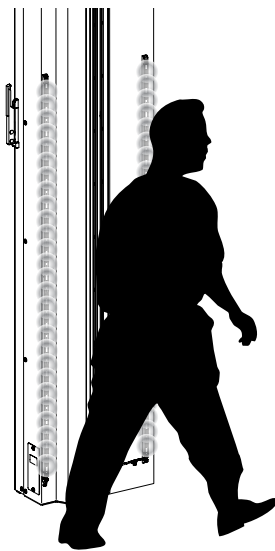


If the red light and yellow lights are on, or if you see a different combination of lights, call Rytec technical support at **800-628-1909**.

- 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.

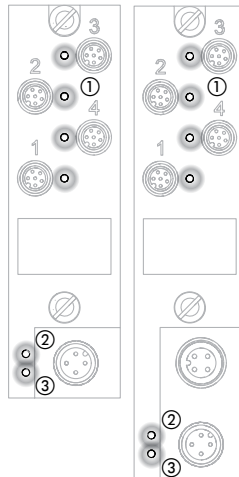
- Test the SmartSurround™ system:**

- 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.



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

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



Contact technical support if you do not see this.

## 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



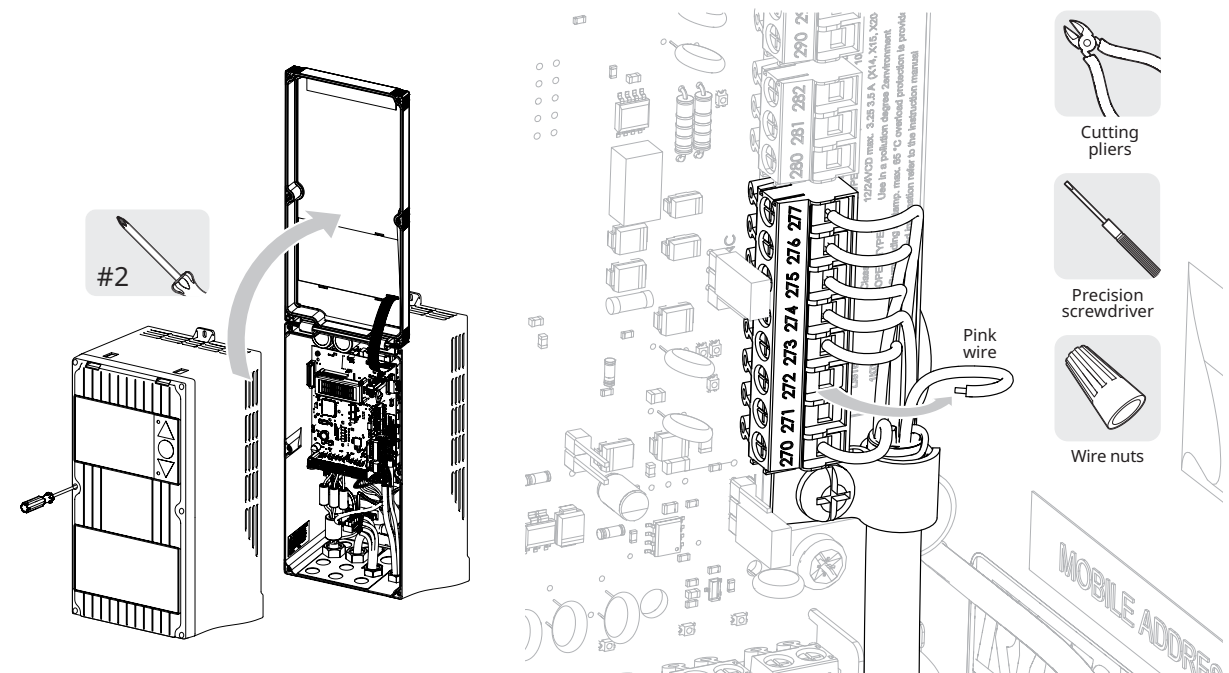
#### ⚠ WARNING

**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.**



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



- Restore** power to the door.



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

Do This

Result

1

ON

OFF

Turn on power to controller

The door starts in run mode.

Spiral LH

[xxx] Cycles

2

until the parameter screen displays

P: Door Cycles 0

000= 32321 Cyc

if you don't start at parameter P:001

1X to reach parameter P:001

P: Password 0

001= 21073 Cyc

The cycle count at parameter P:001 is **from the last time it was locked**, so it may not match the current count for the door.

Do This

Result

3

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

P: Password 0

001= 21073 Cyc

4

until the cycle count updates and the check mark appears

P: Password 0

001= 32321✓Cyc

IMPORTANT

Once the cycle count is locked, **make sure** the door does not open or close until you have received and entered the passcode.

Next: get and enter the passcode

1

Contact Rytec technical support by phone or e-mail:

800-628-1909

support@rytectdoors.com

Be prepared to tell them the **cycle count** and the **reason you need** Rytec level access. Reference the **approval you have already submitted**.

2

INSIDER'S TIP

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.

Do This

Result

3

2X to reach parameter P:999

P: Password 0

999= 0000 #

4

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

P: Password 0

999= 0000✓#

5

until you reach the value of the Rytec passcode

P: Password 0

999= A6C3?#

Do This

Result

6

until question mark changes to checkmark (value saved)

P: Password R

999= A6C3✓#

The "R" in the top right corner indicates you have Rytec level access

7

1X to move cursor to left (parameters)

P: Password R

999= A6C3 #

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

1

until you reach parameter P:F00

P: FSx-Activate R

F00= 0 #

2

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

P: FSx-Activate R

F00= 0✓#

3

1X to change the value to 1

P: FSx-Activate R

F00= 1?#

Do This

Result

4

until question mark changes to checkmark (value saved)

P: FSx-Activate R

F00= 1✓#

5

1X to move cursor to left (parameters)

P: FSx-Activate R




F00= 1 #

1072471-0 • REV 02 • 04/22


38

Do This      Result

6




until you reach parameter P:F07




P: FSx-Address    S  
F07=    C3E64 #

- 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)




P: FSx-Address    S  
F07=    C3E64v#

8




until you reset the value to the original value




P: FSx-Address    S  
F07=    D4A72?#

- 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)




P: FSx-Address    S  
F07=    D4A72v#

10




1X to move cursor to left (parameters)




P: FSx-Address    S  
F07=    D4A72 #

Do This      Result

11




  
  


until you reach parameter P:460




P: Rev Edge       R  
460=       0 #

12




  
  


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




P: Rev Edge       R  
460=       0v#

13




  
  


1X to change the value to 1




P: Rev Edge       R  
460=       1?#

14




  
  


until question mark changes to checkmark (value saved)




P: Rev Edge       R  
460=       1v#

15

1X to move cursor to left (parameters)



P: Rev Edge       R  
460=       1 #

16


until door returns to run mode



Spiral  
[xxx] Cycles