Installation Instructions for Wi-Q Technology™ EXQ Exit Hardware Trim

Wi-Q wireless technology

BEST dormakaba Group

Introduction

These installation instructions describe how to install your BEST® Wi-Q Technology™ EXQ Series Exit Hardware Trim. Electronic Stand-Alone Exit Hardware Trim is available for use with the following types of wide stile exit devices: Precision® brand manufactured by BEST (2000 Series), Von Duprin® (98/99 Series), and Sargent® (8800 Series).

Not all features are available for all exit device configurations. The table below details what sensors are available for which exit device configurations:

Device	DS[a]	TS[b]	LS[c]
Precision			
Rim (2100)	■	■	■
Surface Vertical (2200)	■	■	■
Mortise (2300)	■		
Wood Door Concealed (2700)	■	■	■
Concealed Vertical (2800)	■	■	■
Von Duprin[d]			
Rim	■	■	
Surface Vertical	■		
Concealed Vertical	■		
Sargent[e]			
Rim[f]	■		

a. Door position sensing
b. Request-to-exit (PHI touchbar monitoring)
c. Latch sensing
d. Von Duprin is a registered trademark of Von Duprin, Inc.
e. Sargent is a registered trademark of Sargent Mfg. Co.
f. Latch must have lift-type trim input (8863)

Contents

These instructions cover the following topics:

Site survey

Use the following survey to record information about the installation site and hardware application.

Exit hardware type:

❑ rim ❑ surface vertical rod
❑ mortise ❑ concealed vertical rod

Door handing and bevel:

❑ Left-hand reverse bevel (LHRB)
❑ Right-hand reverse bevel (RHRB)

Door type:

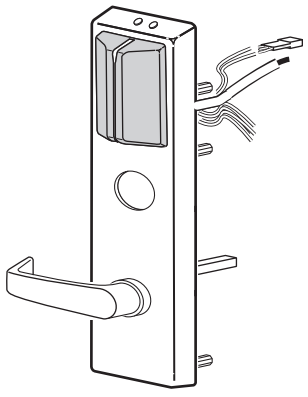
❑ Wood ❑ Metal

Door thickness: _____ inches (1-3/4″ to 2-1/4″)

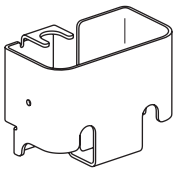
Components checklist

Use the following checklist to make sure that you have the items necessary to install your EXQ Exit Hardware Trim.

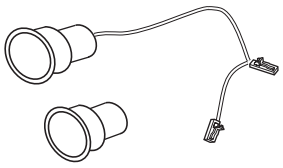
❑ Escutcheon and lever assembly



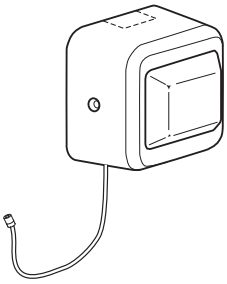
- ❑ Battery bracket



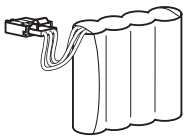
- ❑ Door position switch with magnet



- ❑ Battery cover with antenna



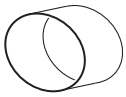
- ❑ Battery pack



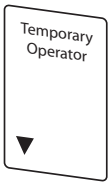
- ❑ Battery cover screw package
- ❑ Bar code ID sticker (for your records)
- ❑ Cable ties, butt-splices, and tape
- ❑ Installation templates and instructions

- ❑ 7-pin core (only included if ordered with trim)

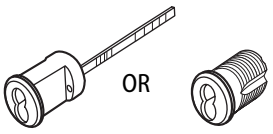
- ❑ Cylinder mounting sleeve (for Von Duprin functions only)



- ❑ Temporary operator card



- ❑ Key cylinder and keys (only included if ordered with trim).



Rim cylinder Mortise cylinder

Tools required

Use the following checklist to make sure that you have the tools necessary to install your EXQ Exit Hardware Trim.

- ❑ Electric drill (preferably corded)
- ❑ Jigsaw
- ❑ Wire snips
- ❑ Wire strippers
- ❑ Phillips screwdriver
- ❑ Measuring tape
- ❑ Straight edge
- ❑ Square
- ❑ Pencil/marker
- ❑ 7/16″ dia drill bit
- ❑ 7/8″ dia drill bit
- ❑ 1″ dia hole saw

For Precision® Hardware and Sargent installations

- ❑ 1-3/8″ dia hole saw (EV function only)
- ❑ 1-1/8″ dia hole saw

For Von Duprin® installations

- ❑ 2″ dia hole saw
- ❑ 3/4″ dia hole saw

For BEST® cylinders

- ❑ BEST ED211 cylinder wrench

For surface vertical exit devices

- ❑ Razor blade

Preparing the door

1 Mark centerlines

Note 1: *If retrofitting to an existing exit hardware installation, skip this task. Instead, remove the exit hardware from the door.*

Note 2: *If the door is a fabricated hollow metal door, determine whether it is properly reinforced to support the lock. If door reinforcement is not adequate, consult the door manufacturer for information on proper reinforcement.*

1 Prepare the push side of the door according to the exit device manufacturer's installation instructions.

Note: *The tape-on template supplied with the EXQ trim will supersede the exit device template in the trim area.*

2 Transfer horizontal and vertical centerlines to the outside of the door face.

Note: *When measuring from the edge of the door, take into account the door bevel (if any).*

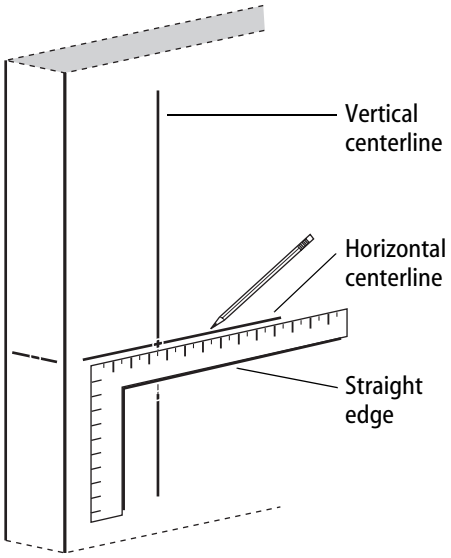


Figure 1 Marking centerlines on outside door face

2 Determine required door prep

1 Determine which template is applicable (Q08 for Precision and Sargent, Q07 for Von Duprin) and discard the other one.

2 Based on the kind of exit device you have, use the table below to locate the appropriate door preparation.

3 On the template, circle the holes needed for your installation and cross out those that are not applicable.

	Device	Figure
Precision	Rim (2100)	Figure 2
	Surface Vertical (2200)	Figure 3
	Mortise (2300)	Figure 4
	Wood Door Concealed (2700)	Figure 3
	Concealed Vertical (2800)	Figure 3
Von Duprin	Rim (with RQE)	Figure 5
	Rim (without RQE)	Figure 7
	Surface Vertical	Figure 7
	Concealed Vertical	Figure 7
	Sargent Rim	Figure 6

Note: *Follow the Precision 2300 door preparation for Sargent, ignoring any steps directly pertaining to the mortise lock or key cylinder.*

Preparing the door

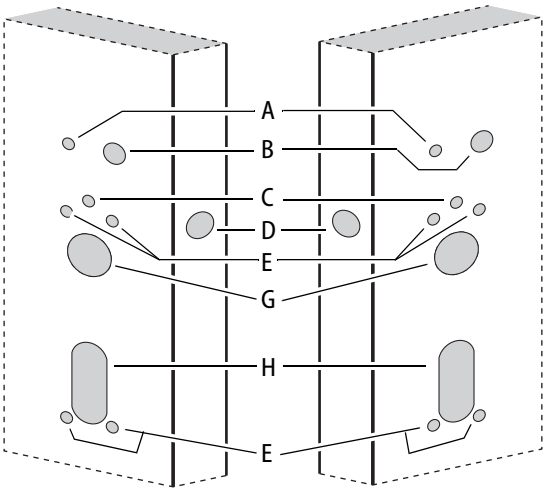


Figure 2 Outside door prep for use with Precision exit hardware, 2100 Series

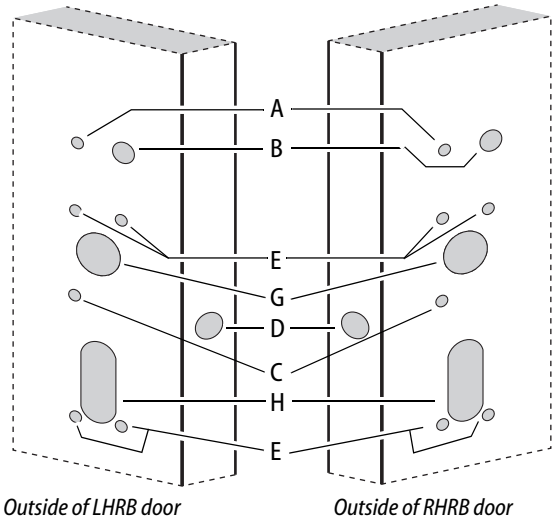


Figure 3 Outside door prep for use with Precision exit hardware, 2200, 2700, and 2800 Series

Hole	Description	Instructions
A	Battery bracket hole	7/16″ diameter, thru door
B	Battery bracket/harness hole	7/8″ diameter, thru door
C	Sensor harness routing hole	7/16″ diameter, thru door
D	Door sensing switch mounting hole and channel	1″ diameter hole, drilled 1-3/4″ deep, then 7/16″ channel to intersect door sensing wire routing hole.
E	Escutcheon mounting holes	7/16″ diameter, thru door
F	Door sensing switch magnet hole (in door frame or opposing door leaf)	1″ diameter hole, drilled 1-3/4″ deep (NOT SHOWN).
G	Cylinder hole	**Precision**: 1-3/8″ diameter, thru door (for 2300, only into mortise cavity) **Von Duprin**: 2″ diameter thru door
H	Lift finger slot	**Precision/Sargent**: 1-1/8″ diameter slot, thru door **Von Duprin**: 3/4″ diameter slot, thru door

Preparing the door

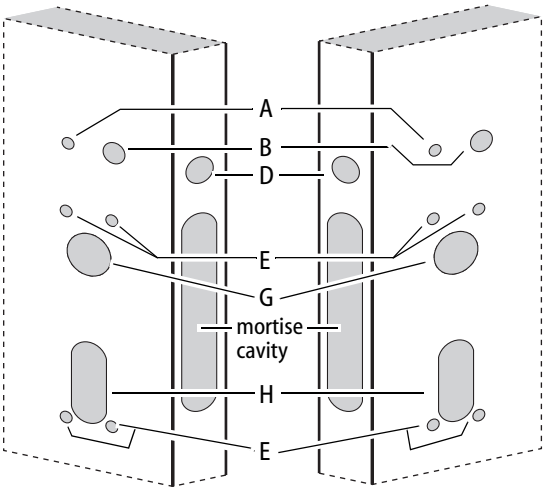


Figure 4 Outside door prep for use with Precision exit hardware, 2300 Series

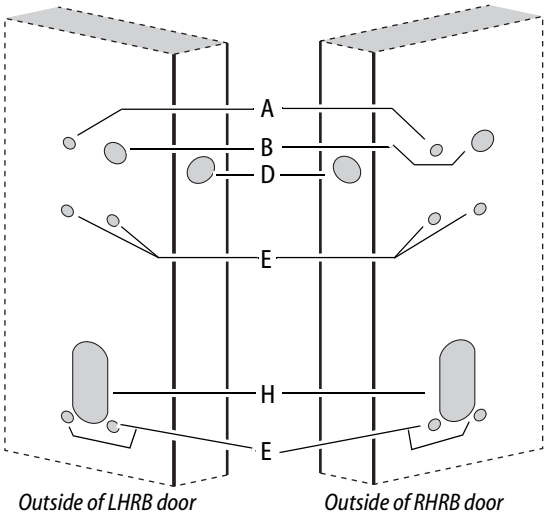


Figure 6 Outside door prep for use with Sargent 8863 exit hardware

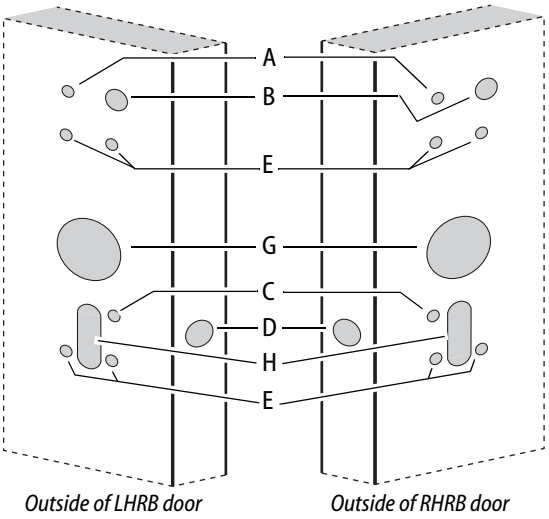


*Figure 5 Outside door prep for use with Von Duprin exit hardware, Rim **with** RQE only*

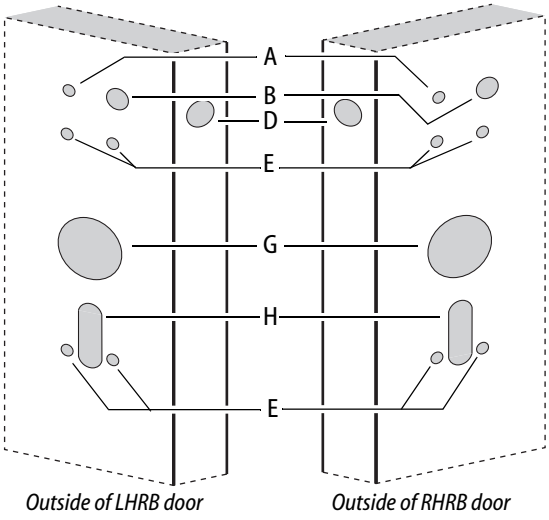


*Figure 7 Outside door prep for use with Von Duprin exit hardware. Use for all Von Duprin vertical rods and rim **without** RQE*

Preparing the door

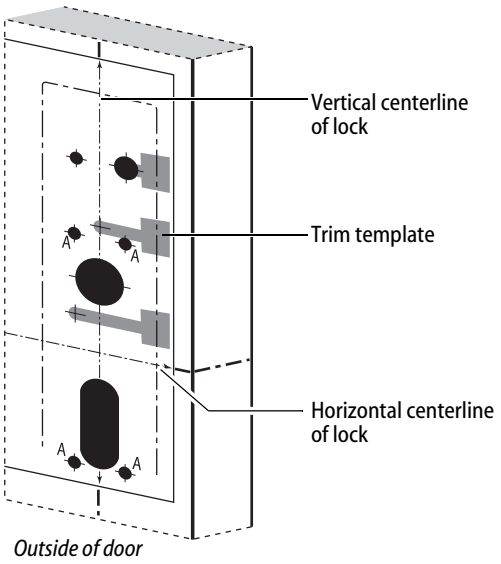


Figure 8 Positioning the trim template, Q08 LHRB shown

3 Position trim template and mark drill points

1 **For new installations**

a Cut the applicable template along the dashed lines.

b Align the horizontal and vertical centerlines marked on the template with the centerlines marked on the ***OUTSIDE*** of the door (from step 1). See Figure 8.

For retrofit installations

Align the mounting holes for the escutcheon and lock stile case shown on the template with the mounting holes already present in the door.

Note: *The outside escutcheon is mounted using the four lock stile case mounting holes ('A' holes); these holes must be 7/16" in diameter and drilled completely through the door.*

2 Tape the template to the ***OUTSIDE*** of the door in the properly aligned position.

3 Center punch the necessary drill points. Refer to the instructions on the template and the figures of the previous step.

4 Mortise for mortise case and faceplate (mortise exit devices only)

Note: *If retrofitting the EXQ Exit Hardware Trim to an existing exit hardware installation, skip this task.*

Mortise the edge of the door for the mortise case and faceplate; follow the instructions provided by the exit hardware manufacturer.

Installing the exit hardware and trim

5 Drill holes

Caution: **Double-check for the correct lock function, hand, and bevel before drilling.**

1 Drill the trim holes that are required for your application; follow the instructions on the trim template and refer to the figures in step 2.

Note 1: *To locate the center of a hole on the opposite side of the door, drill a small pilot hole through the door.*

Note 2: *For holes through a wood door, drill halfway from each side of the door to keep the door from splintering.*

6 Install mortise case (mortise exit devices only)

Install the mortise case in the door; follow the instructions provided by the exit hardware manufacturer.

7 Install door sensing switch

1 Clip off the purple wires and connector and remove.
2 Clip off the connector from the white door sensing harness (with black sleeving) and leave as much wire as possible. See Figure 9. These wires will be butt-spliced to the sensing harness from the trim. See "Route sensor wires" on page 14.
3 Route the door sensing switch wires through the channel and out through the wire routing hole to the exit device side. See Figure 9.
4 Press-fit the door sensing switch into the 1" diameter hole in the door.
5 Mark and drill 1" diameter hole in the frame, aligned with the door position switch (for the magnet).

Note: *For double-door applications, this hole will be into the edge of the opposing door leaf (not the frame).*

6 Press-fit the door sensing magnet into the 1" diameter hole in the frame.

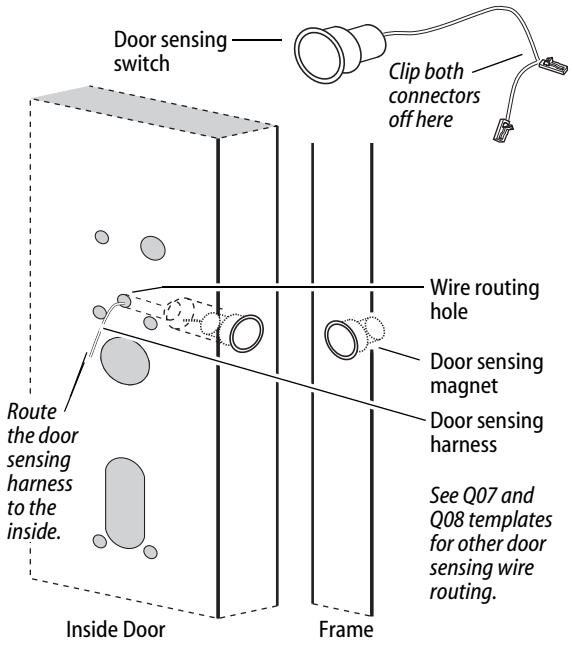


Figure 9 Installing the door sensing switch and magnet, Precision 2100 shown

Installing the exit hardware and trim

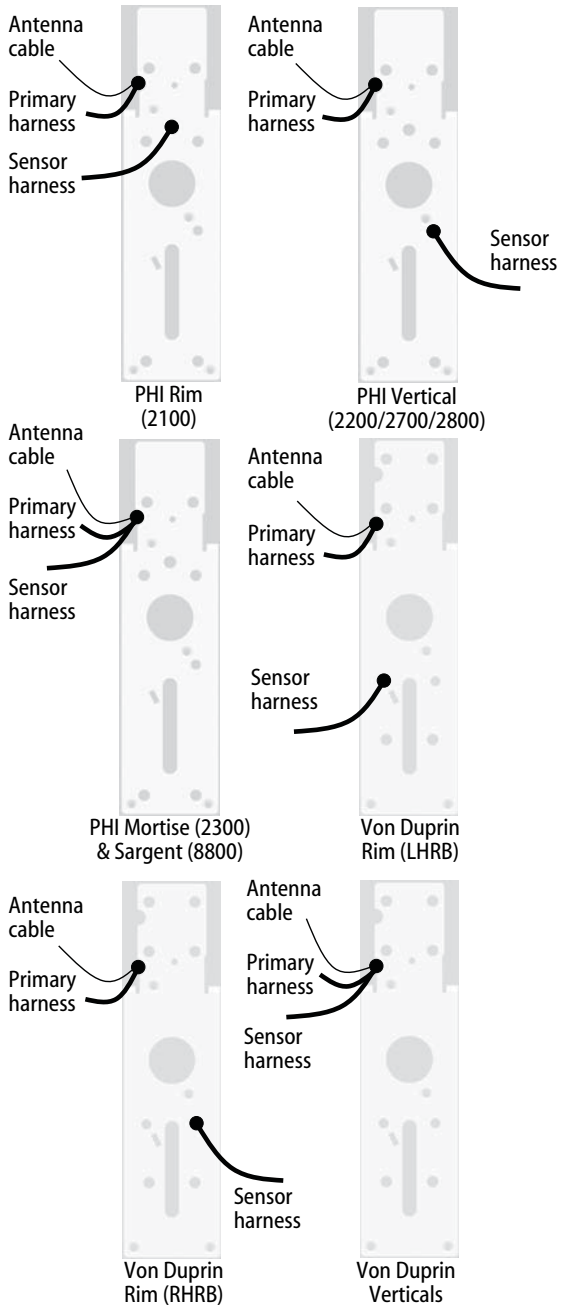


Figure 10 Variations of EXQ Trim rear view

8 Re-route sensor harness (if applicable)

Looking at the back of the trim, compare it to the pictures in Figure 10. If your trim does not match the proper picture, then follow the applicable steps below to re-route the sensor harness.

Installing the exit hardware and trim

1 Carefully peel the black gasket off of the back of the trim. Set it aside to be re-applied later.

2 Remove the backplate from the trim by removing the four screws that attach it.

3 While the gasket and backplate are removed, change the handing of the trim if necessary.

Do so by removing the four threaded guide pins and retaining ring as shown in Figure 11, pulling out and flipping the lever 180 degrees, and then reassembling.

For Precision 2100 devices

4 Re-route the sensor harness out through the alternate wire-routing hole as shown in Figure 12.

5 Reattach the backplate ensuring that the springs are properly seated and wires are not pinched.

6 Reapply the gasket.

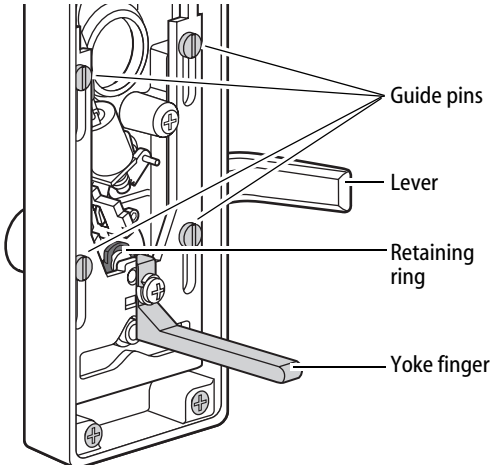


Figure 11 Changing the hand of the trim (if needed)

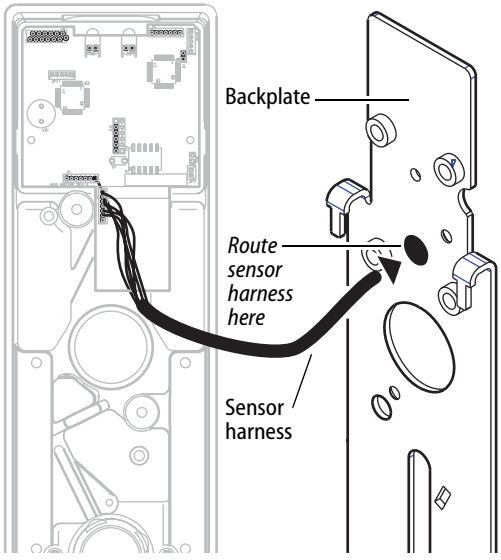


Figure 12 Re-routing the sensor harness for Precision 2100 exit devices

Installing the exit hardware and trim

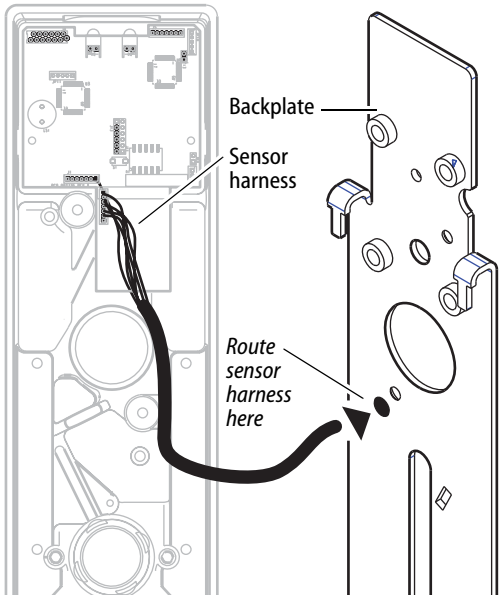


Figure 13 Re-routing the sensor harness for Precision 2200, 2700 and 2800 exit devices

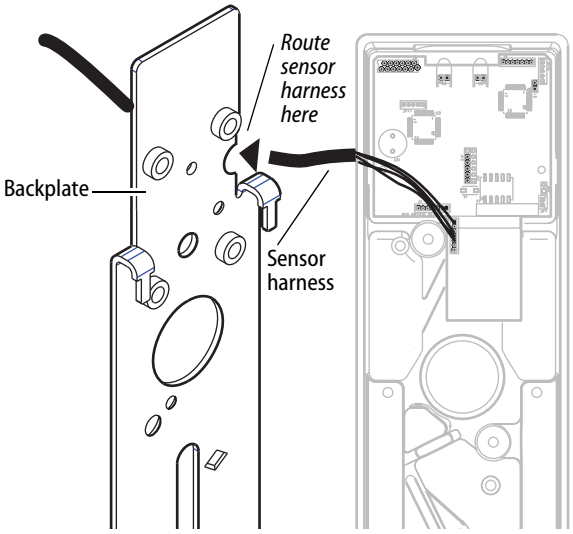


Figure 14 Re-routing the sensor harness for Precision 2300 and Sargent 8800 exit devices

For Precision 2200, 2700 and 2800 devices

4 Re-route the sensor harness around the cylinder hole and around the escutcheon boss, then out through the alternate wire-routing hole as shown in Figure 13.

5 Reattach the backplate ensuring that the springs are properly seated and wires are not pinched.

6 Reapply the gasket.

For Precision 2300 and Sargent 8800 devices

4 Re-route the sensor harness toward the top of the escutcheon to the same area as the battery cable, antenna cable and relay shunts. See Figure 14.

5 Reattach the backplate ensuring that the springs are properly seated and wires are not pinched.

6 Reapply the gasket.

For Von Duprin Rim devices with RQE

4 Re-route the sensor harness around the cylinder hole and around the escutcheon boss, then out through one of the alternate wire-routing holes (based on handing) as shown in Figure 15.

5 Reattach the backplate ensuring that the springs are properly seated and wires are not pinched.

6 Reapply the gasket.

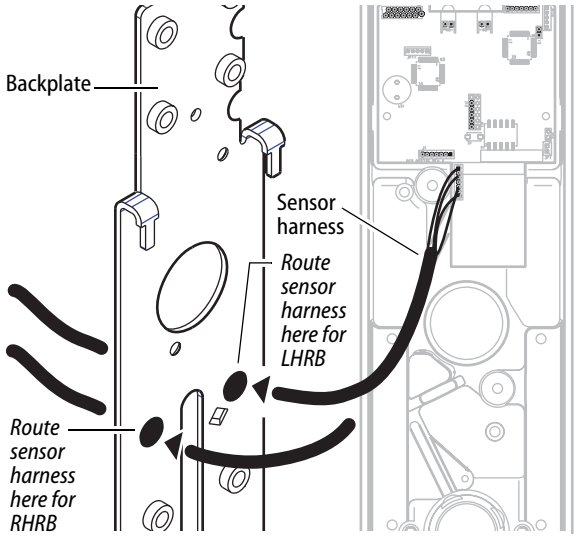


Figure 15 Re-routing the sensor harness for Von Duprin with RQE

Installing the exit hardware and trim

For Von Duprin vertical rod devices and rim without RQE

4 Re-route the sensor harness as shown in Figure 16.

5 Reattach the backplate ensuring that the springs are properly seated and wires are not pinched.

6 Reapply the gasket.

9 Install cylinder (Von Duprin only)

1 To determine the correct spindle length, try the cylinder in the door while holding the escutcheon and lock stile case in place.

Then break off the spindle at the groove where it will engage correctly with the latching mechanism.

If necessary break off the mounting screws as shown in Figure 17.

2 From the front of the escutcheon, insert the cylinder into the cylinder opening.

3 Holding the cylinder in position in the escutcheon, insert the cylinder mounting sleeve through the back of the escutcheon, over the cylinder.

4 Orient the cylinder and clamp plate as shown in Figure 17. From the back of the escutcheon, secure the cylinder and mounting sleeve using the clamp plate and mounting screws.

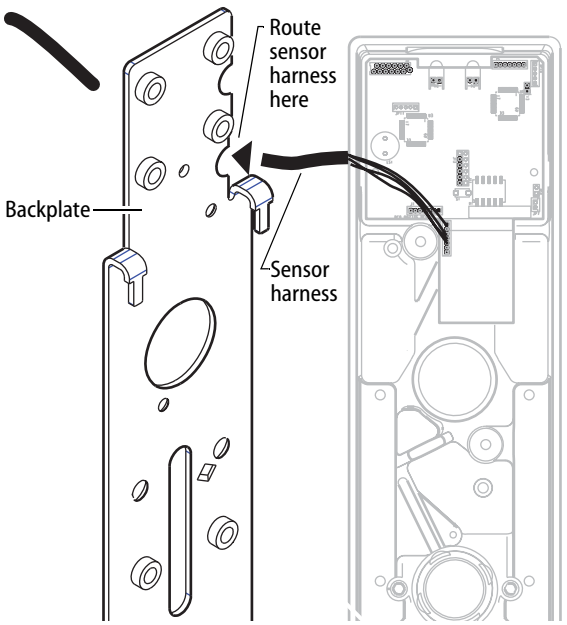


Figure 16 Re-routing the sensor harness for Von Duprin vertical rod and rim without RQE exit devices

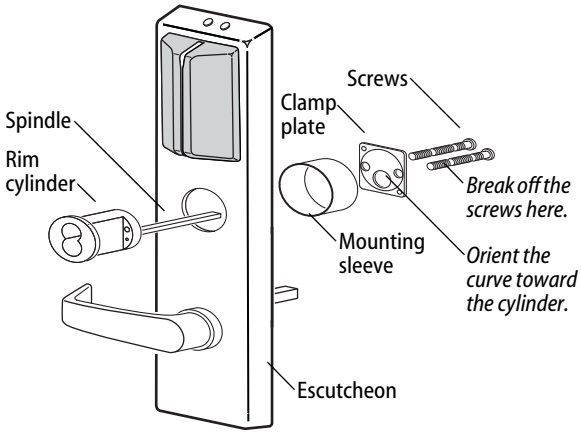


Figure 17 Installing the cylinder for Von Duprin rim and rod exit devices

Installing the exit hardware and trim

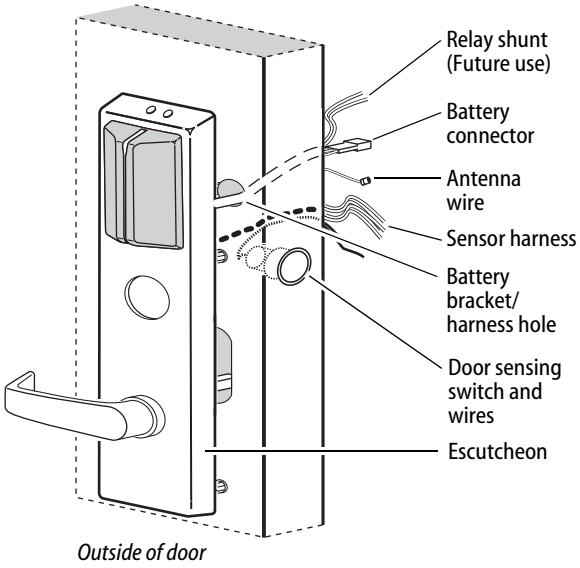


Figure 18 Feeding the wires through the door

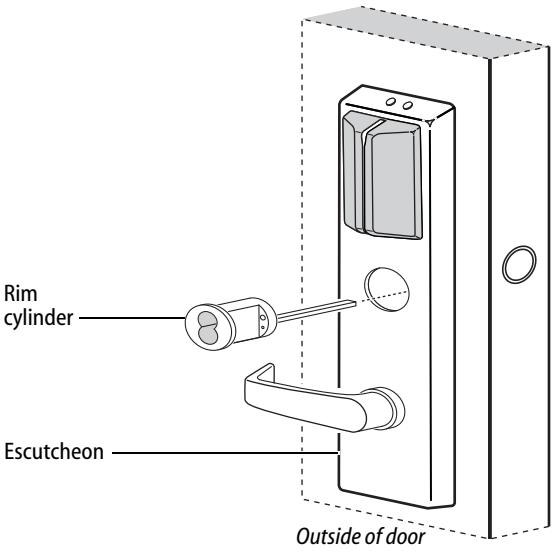


Figure 19 Installing the cylinder

10 Route wire harnesses and position escutcheon

1 From the outside of the door, feed the antenna wire and battery connector (with relay shunt) through the battery bracket/harness hole as shown in Figure 18.

Caution 1: **When routing the connectors, make sure the harnesses are not routed across any sharp edges or over any surface that could damage their sleeving or wire insulation.**

Caution 2: **Do not strain the wire harness either by pulling too hard on it or by dangling the escutcheon from it.**

2 Route the sensor harness through the door (same hole as the door sensing wires).

3 Rest the escutcheon on the door by inserting the trim studs into the mounting holes.

11 Install cylinder (Precision devices)

For rim and vertical rod exit device installations (rim cylinder)

1 To determine the correct spindle length, try the cylinder in the door while holding the escutcheon and lock stile case in place.

Then break off the spindle at the groove where it will engage correctly with the latching mechanism.

Break off the mounting screws at the groove where they will secure the clamp plate to the cylinder.

2 Insert the cylinder through the cylinder opening in the escutcheon and into the door as shown in Figure 19.

3 Orient the cylinder and clamp plate as shown in Figure 20. From the inside of the door, secure the cylinder using the clamp plate and mounting screws.

Installing the exit hardware and trim

For mortise exit device installations (mortise cylinder)

1 **For doors less than 2″ in thickness**, place the cylinder ring provided on the cylinder.

2 Rotate the cylinder cam to the 12 o'clock position, as shown in Figure 21.

3 Using a cylinder wrench (ED211), insert the cylinder through the cylinder opening in the escutcheon and screw the cylinder into the mortise case. Make sure that the figure-8 hole is in the 12 o'clock position.

Caution: **Do not screw the cylinder in too tightly. Doing so may cause users to be locked out.**

12 Install exit hardware and secure escutcheon

For Precision 2200, 2700 and 2800 exit devices only

- Drill a 5/16″ hole through the front part of the chassis as shown in Figure 22. (This hole is used to pass the sensor harness and door position switch wires into the chassis area.)

For all exit devices

1 Make any adjustments to the exit hardware necessary for compatibility with lever function outside trim.

2 Install the exit hardware (lock stile case, touch bar assembly, latches and rods [if applicable], and related hardware); follow the instructions provided by the exit hardware manufacturer.

Note: *The escutcheon is secured on the outside of the door by the screws used to mount the lock stile case on the inside of the door.*

Caution: **When securing the escutcheon, make sure that it does not pinch any wires.**

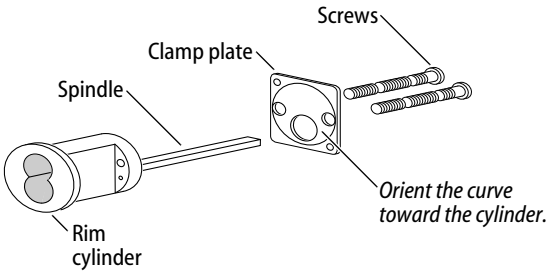


Figure 20 Rim cylinder components

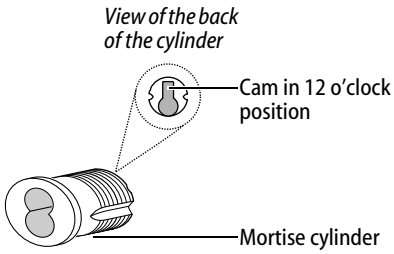


Figure 21 Mortise cylinder components

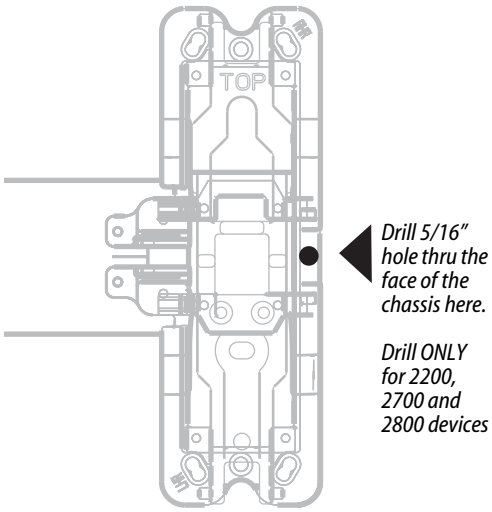


Figure 22 Drilling 5/16″ hole for Precision 2200, 2700, and 2800 exit devices only

Installing the exit hardware and trim

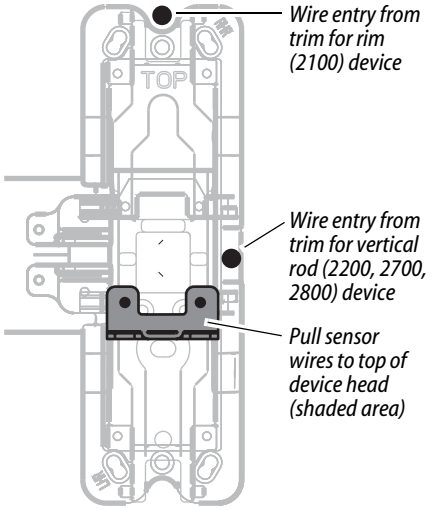


Figure 23 Pulling sensor harnesses to the top of the device head

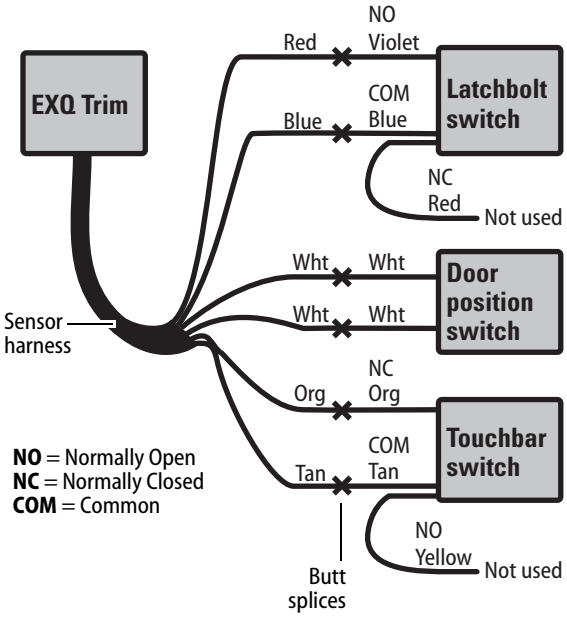


Figure 24 Schematic diagram for connecting Precision sensor harness wires

13 Route sensor wires

Use the following table to determine sensing wire functions:

Wire function	Colors	No. of wires
Touchbar monitoring (RQE)	Orange and tan	2
Door sensing	White	2
Latchbolt sensing	Red and blue	2

1 Pull wires from the sensor harness, door position switch, latchbolt switch, and touchbar switch to the top of the device head as shown in Figure 23.

Note: *For Precision 2300, Sargent 8800, or any Von Duprin application without RQE, pull the door position switch and sensor harness wires into the battery bracket area rather than the device head.*

Note: *For Von Duprin applications with RQE, touchbar switch wires must be re-routed into the device head in such a way as to avoid any pinching or contact with moving parts. The sensor harness can be routed into the head area through any suitable hole in the chassis.*

2 Cut the wires to the appropriate length (that is, remove the excess to leave minimal slack after the spliced connections).

3 Strip the wire ends for connection using the butt-splices.

4 Make wire connections as detailed in Figure 24 or Figure 25 using the butt-splices (provided).

Note: *For Sargent devices, connect the door position switch to the two white sensor harness wires.*

Note: *In the case of unused wires, be sure to cover the ends with electrical tape.*

Installing the exit hardware and trim

5 Make sure to route and dress the wires so that they do not interfere with any moving parts.

6 Tape the wires to the device head (some tape is provided).

Note: *For Precision 2200, 2700, and 2800 exit devices, use cable ties in addition to the tape, to hold wires as shown in Figure 26.*

7 Install the case cover.

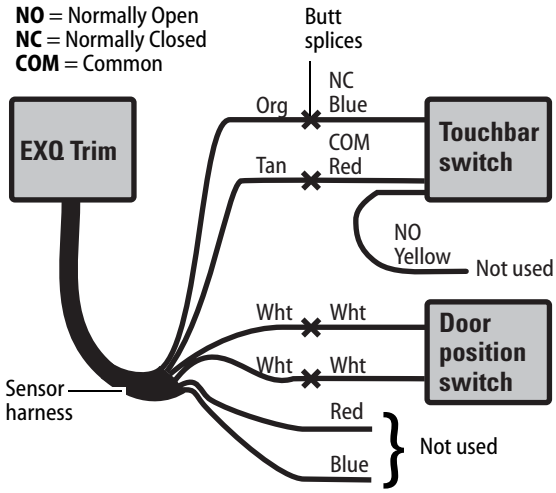


Figure 25 Schematic diagram for connecting Von Duprin sensor harness wires

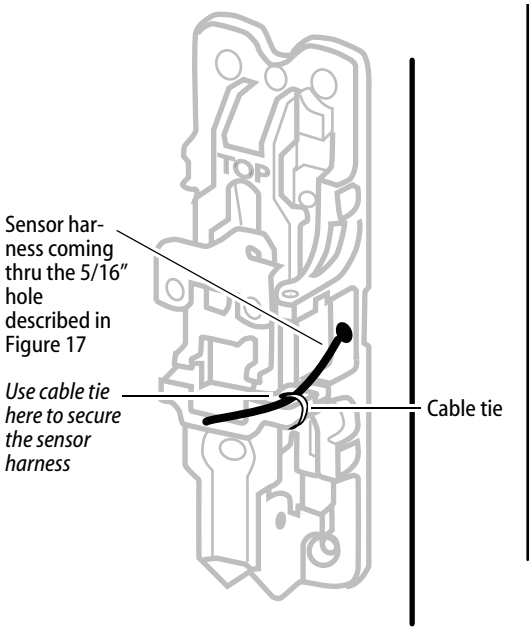


Figure 26 Using cable ties to hold wires for Precision 2200, 2700, and 2800 exit devices

Installing the exit hardware and trim

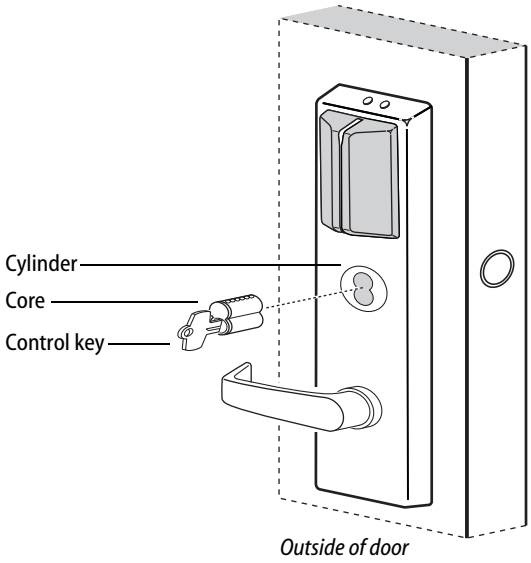


Figure 27 Installing the core

14 Install core

1 Insert the control key into the core and rotate the key 15 degrees to the right.
2 With the control key in the core, insert the core into the cylinder as shown in Figure 27.
3 Rotate the control key 15 degrees to the left and withdraw the key.

Caution: **The control key can be used to remove cores and to access doors. Provide adequate security for the control key.**

15 Install mortise case faceplate (mortise exit devices only)

1 Secure the mortise case faceplate to the mortise case; follow the instructions provided by the exit hardware manufacturer.
2 Check the lock for proper operation.

16 Install strike(s)

Note: *If retrofitting the trim to an existing exit hardware installation, skip this task.*

1 Install the strike(s) in the door frame or door stop; follow the instructions provided by the exit hardware manufacturer.
2 Check the lock for proper alignment between the strike(s) and latch(es).

Completing the installation

17 Install battery bracket on door

1 Position the battery bracket on the inside of the door as shown in Figure 28.

Note: *If installing with a surface rod exit device, the battery bracket is mounted over the upper rod.*

2 Secure the battery bracket to the door using two of the mounting screws provided.

Note: *For doors less than 2″ in thickness, use the 1 1/4″ screws. For doors 2″ or greater, use the 1 3/4″ screws.*

Caution: **When routing the wire harness, make sure the wires are not routed across any sharp edges or over any surface that could damage their sleeving or wire insulation. Keep away from any moving parts.**

3 Tape all wires to the bracket using the tape provided.

Note: *For Precision 2300, Sargent 8800, or any Von Duprin exit device without RQE, sensor harness and door position switch wires will also be run into this area of the battery bracket.*

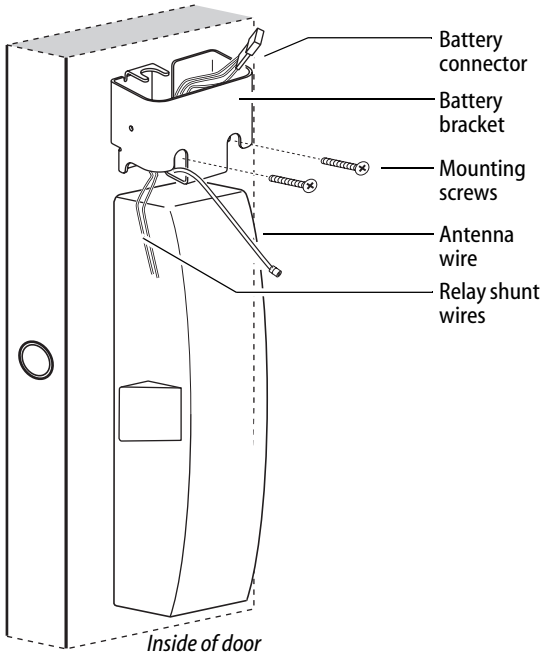


Figure 28 Installing the battery bracket on the door

Completing the installation

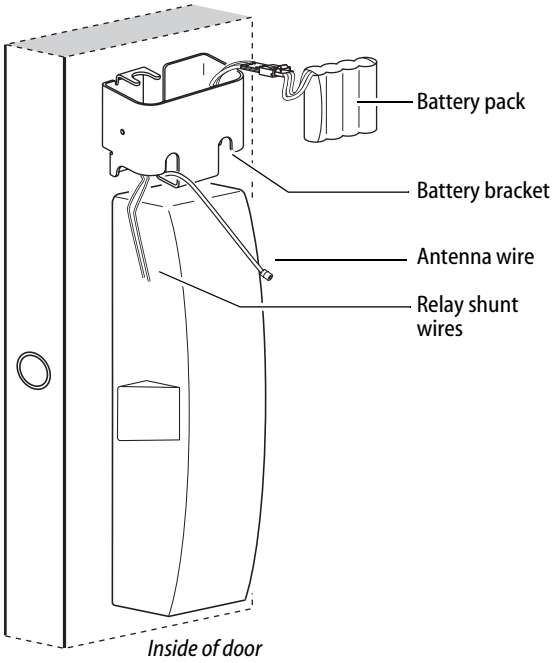


Figure 29 Connecting the battery pack

18 Install battery pack in bracket

1 Connect the battery pack to the battery connector on the wire harness as shown in Figure 29.

Caution: **When connecting the battery pack, make sure:**

- **there are no loose wire connections where the wires are inserted into the connectors**
- **the connectors are firmly mated.**

2 Place the battery pack in the holder inside the battery bracket and dress the wire harness inside the bracket.

Caution: **The battery pack fit will be snug. Make sure you do not damage the sleeving on the battery pack. Doing so may cause the batteries to drain.**

3 **If installing with a surface vertical rod device**, dress the wire harness inside the bracket to the left of the rod so that the harness will not interfere with the movement of the rods.

We recommend that you loosely coil the harness and use a cable tie to secure the coil. To avoid damaging the harness, do not put any sharp bends in it or flex it close to the connectors.

Caution: **Failure to dress the wire harness away from the rod could damage the wire harness, causing the lock's electronics to not work properly.**

Completing the installation

19 Install battery/antenna cover

1 **If installing with a surface vertical rod exit device**, carefully use a razor blade to remove the knockouts for the rod from the battery cover. See Figure 30.

2 Connect the antenna to its mating connector.

3 Coil the antenna wire carefully inside the battery cover.

Caution: **Carefully bend, but do not twist or kink the antenna wire. Doing so may significantly reduce or completely interrupt signal transmission.**

4 **Making sure that the battery/antenna cover does not pinch any wires**, place the battery/antenna cover over the bracket and battery.

5 Secure the battery cover with the provided self-tapping screws.

Caution: **Tighten screws firmly but do not overtighten. Over-tightening may strip screw holes or crack the cover.**

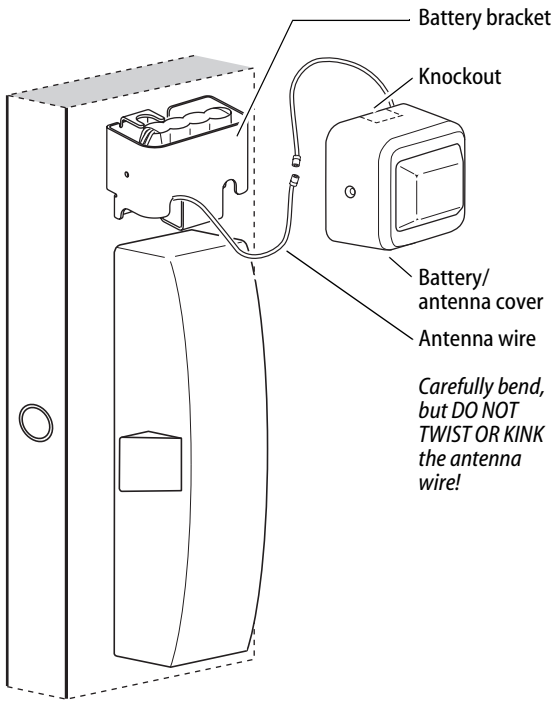


Figure 30 Installing the battery cover over the battery bracket and connecting the antenna

Completing the installation

20 Test lock

For EXQ Locks with keypad only:

To test the lock for proper operation before the lock is programmed, follow these instructions:

1 Press **1234**.

2 Press **#**.

The green light flashes and the locking mechanism unlocks.

3 Turn the lever and open the door.

For all other locks:

To test the lock for proper operation before the lock is programmed, use the temporary operator card that came with the lock. This card is for temporary use only. After permanent cards have been programmed for the lock, the temporary card should be deleted.

1 Use the temporary operator card to activate the lock.

2 Use the temporary operator card to access the lock.

The green light flashes and the locking mechanism unlocks.

3 Turn the lever or knob and open the door.

4 With the door closed, insert and turn the key to unlatch the door.

If the mechanism doesn't unlock, refer to the following table.

LEDs	Sounder	You should
Single red flash	1 short tone	Use the card at a moderate speed.
Single red flash	3 short tones	Use the temporary operator card provided with the lock. **or** Perform a door reset to restore to the factory default settings (the lock may already be associated/programmed)
Alternating red and green flashes	none	Check the motor connection.
none	none	Check the battery connection.

***Important*: When the trim and exit hardware installation is complete, perform all testing specified by the exit hardware manufacturer.**