CARRIER INSTALLATION

SensorLINK 200x Installation

Carrier Single- and Multi-Temperature Units



SAFETY

Work Safely Before You Begin

WARNING — Unexpected Starting and Hazardous Voltage
Refrigeration units can start automatically or remotely. Some units can be started remotely even when switched off. Moving parts and electrical power can cause serious injury or death. High voltage can be present while a unit is running in diesel mode or connected to electric standby.

- **Turn the unit off and disconnect the battery.** Follow the unit manufacturer's service instructions before opening equipment, unplugging connectors, or working on wiring.
- **Disconnect electric standby power if equipped.** Turn off the external power source before handling the standby cord, then disconnect the cord.
- **Isolate and verify all hazardous energy.** Follow the facility's energy-control and lockout/tagout procedures, including stored energy. A qualified person must verify isolation before work begins.
- **Protect yourself.** Wear safety glasses and the appropriate protective equipment. Keep hands, clothing and tools clear of fans, belts and hot surfaces.
- **Check before drilling.** Do not drill into the refrigeration unit unless directed by the unit manufacturer. Verify the area behind any trailer mounting surface is clear.

When Power Is Needed for Testing or Setup: Follow the unit and facility procedures for safely restoring power. Keep people clear of moving parts. Only qualified personnel should perform live electrical checks with appropriately rated equipment and protective gear. Isolate power again before further work on wiring or connections.

BEFORE YOU START

Choose the Correct Installation Path

This guide covers the SensorLINK 200x wireless door-switch system for Carrier single- and multi-temperature installations. Identify the Carrier unit, controller, harness, and number of doors and compartments before starting.

Single-Temperature
HAR-00010 relay and harness shown in the installation example →

Multi-Temperature
Vector multi-zone relay module and extended harness →

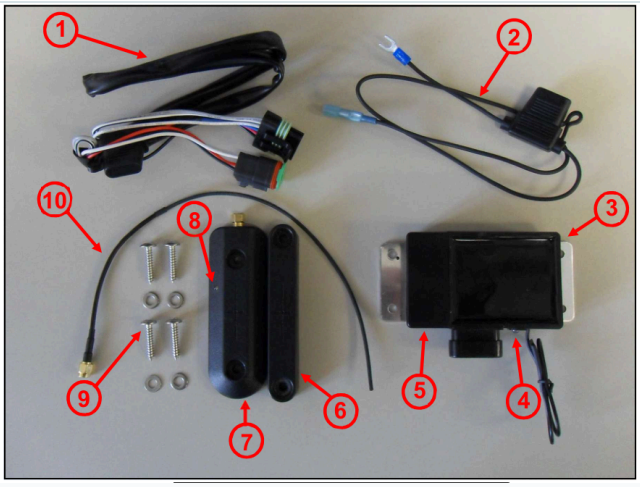
Identify the Actual Kit and Unit
The HAR-00010 photos show a specific installation. The separate multi-zone relay instructions describe the Vector configuration in the supplied Carrier multi-temperature manual. Connector locations, harnesses, and controller settings can vary by unit and kit. Confirm the unit and harness before cutting or connecting any wire.

After completing the applicable wiring path, continue with **sensor installation**, **controller setup**, **training**, and **final verification**.

IDENTIFY THE PARTS

SensorLINK and Carrier Installation Components

Locate the SensorLINK receiver module, jumper cover and plug, door transmitter, magnet, antenna, mounting hardware, and the harness and relay supplied for the Carrier installation. Kit contents differ with the wiring path.



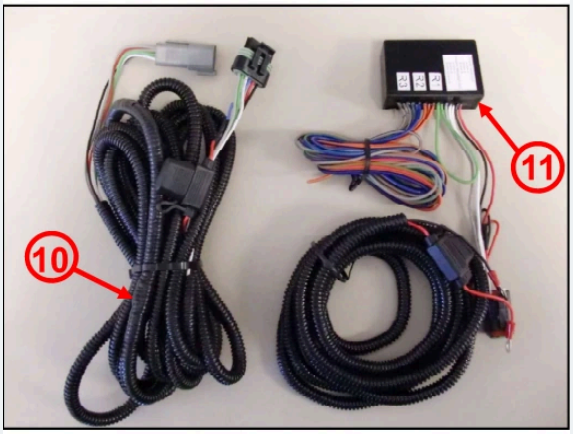
SensorLINK components. Confirm the Carrier-specific harness and relay supplied for the unit.

Single-Temperature Example

The documented HAR-00010 installation uses a harness with a relay, module connection, unit door-switch connector and power lead.

Multi-Temperature Relay Kit

The supplied Vector multi-zone instructions show an extended harness and a separate relay module marked R1, R2 and R3. The standard harness and inline fuse pictured in the basic component set are not used for that documented kit; follow the harness supplied for the installation.



Multi-temperature kit: **10** extended harness; **11** relay module.

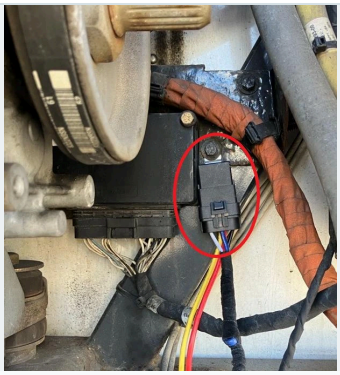
PREPARATION

Prepare the Carrier Unit

1. Record the existing controller settings and identify the doors and compartments to be connected.
2. Disconnect the unit battery and follow applicable safety procedures. Confirm power is isolated before working on wiring.
3. For the HAR-00010 installation shown, remove the unit's bottom panel, open the required front and roadside doors, and unplug and remove the display panel.
4. Check the unit and trailer construction before selecting a harness route or drilling location. Protect the evaporator, wiring, refrigerant lines, hot exhaust, and moving parts.



Display panel in the documented HAR-00010 installation.



Harness relay beside the engine control unit.

MODULE PREPARATION

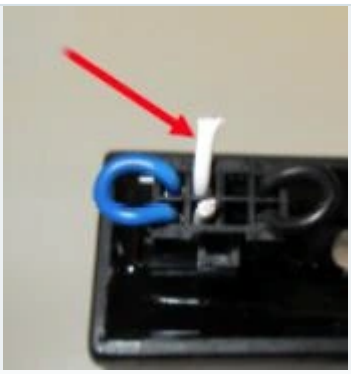
Prepare the Receiver Output

The HAR-00010 example and the supplied multi-zone relay instructions show negative-output preparation. Confirm that this procedure matches the supplied harness before making changes, and complete it **before training**.

1. With power isolated, remove the receiver jumper cover and bring the jumper harness out of the compartment. Retain the cover.
2. The instructions caution against initial power-up with the jumper unplugged because the door indication may be reversed. For the preparation below, disconnect the jumper with power isolated.
3. For the documented Carrier relay setup, cut the **white wire on the jumper plug**, then reconnect the jumper plug.
4. Cut the **blue wire on the applicable harness near the module connector**. This is the harness wire, not the blue jumper wire. The multi-zone instructions call for insulating the cut harness end.
5. Keep the jumper connected for initial power-up. The supplied multi-zone instructions describe the white, white/black, and gray outputs as negative outputs in this relay configuration.



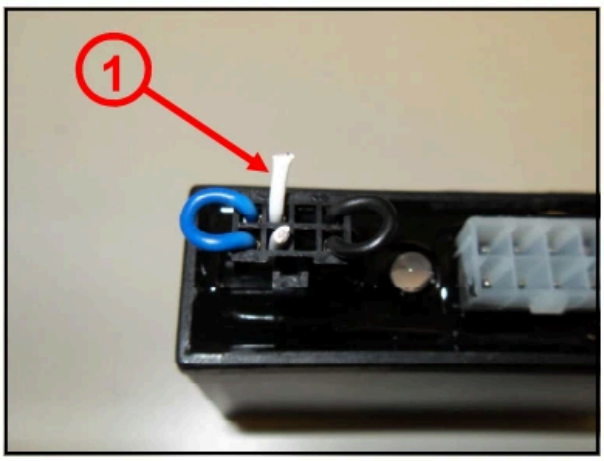
Remove the cover and locate the jumper.

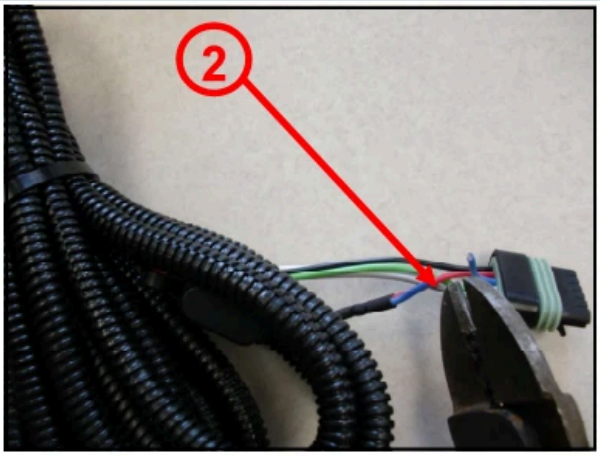


White wire on the jumper plug.



Blue wire on the harness, not the jumper.





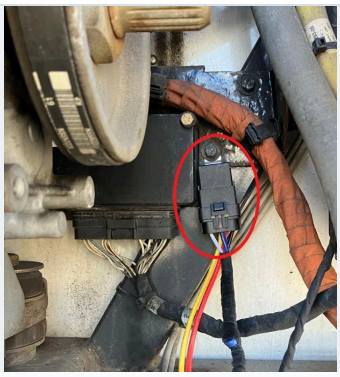
Multi-zone reference: **1** white jumper wire; **2** blue extended-harness wire.

SINGLE-TEMPERATURE · HAR-00010

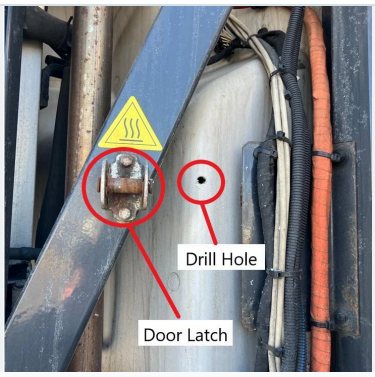
Mount the Relay and Plan the Route

Before starting this wiring path, complete **unit preparation** and **receiver output preparation**.

The photographs show one HAR-00010 installation. Verify the unit and harness match the example before following this path.



HAR-00010 relay mounting point.



Example from one unit only. Verify a safe drilling location on the actual unit.

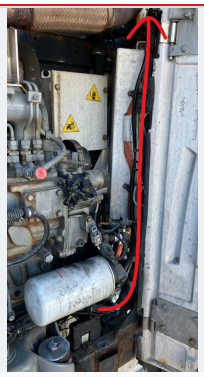
Verify the Drilling Location on Every Unit
The pictured hole is an example from one unit, not a safe drilling point for all Carrier units. Before drilling, the installer must verify both sides and the full drilling path are clear of the evaporator, refrigerant lines, wiring, and other components. Choose another route if clearance cannot be verified.

1. Mount the harness relay at the bolt beside the engine control unit as shown.
2. Identify the long harness lead that travels to the trailer interior. Keep the harness protected and away from the unit exhaust.
3. In the pictured unit, a **3/8-inch hole** was drilled near the door latch through both bulkhead layers. Treat this only as an example; verify a safe location and drilling path on the actual unit before drilling.
4. Route the harness toward the passage and seal the opening after the harness is in place.

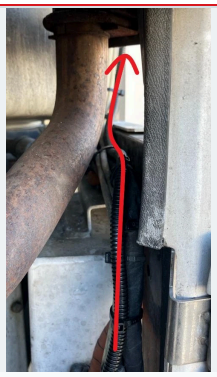
SINGLE-TEMPERATURE · HAR-00010

Route the Harness Into the Trailer

1. Follow the harness route upward toward the bulkhead passage. Keep it clear of the exhaust and secure it against rubbing and movement.
2. Inside the trailer, remove the rear panel as needed and locate the harness where it enters the evaporator area. Seal around the harness.
3. Route the lead upward through the grommet shown in the supplied instructions, then protect and secure the route.
4. Install the loose connector supplied with the harness: **red wire in position A** and **white wire in position C**. Verify the connector position markings before inserting the terminals.



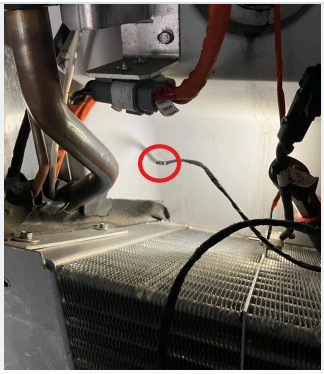
Route from the lower unit upward.



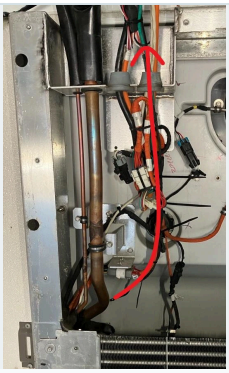
Keep the harness clear of the exhaust.



Route to the bulkhead entry point.



Locate and seal the interior entry.



Route upward through the grommet.

HAR-00010 Lead	Connector Position
Red	A
White	C

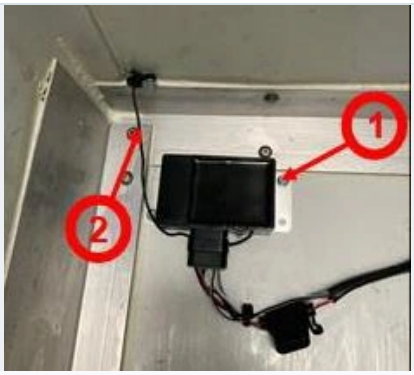
SINGLE-TEMPERATURE · HAR-00010

Mount and Connect the Module

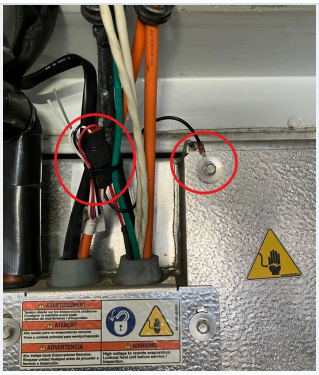
1. Mount the module on the front wall as shown in the supplied installation. Route and secure the antenna inside the trailer.
2. Connect the module harness to the HAR-00010 harness. Reinstall the unit panel and attach the module ground at the panel bolt shown for this installation.
3. Locate the unit's door-switch connector. The photographs show possible locations behind the controller and underneath the engine; the location can vary by unit. Identify the capped two-position connector with **two white**

wires; the instructions distinguish it from a similar connector with one white and one black wire. Confirm against the unit wiring information before connecting.

4. Remove the cap and connect the HAR-00010 door-switch lead.
5. Route the harness power lead to the unit starter and connect it to the positive terminal shown in the supplied instructions. Protect and secure the lead.
6. Reinstall the display and panels, then reconnect the battery when the installation is ready for controller setup and testing.



Module mounting shown in the supplied installation.

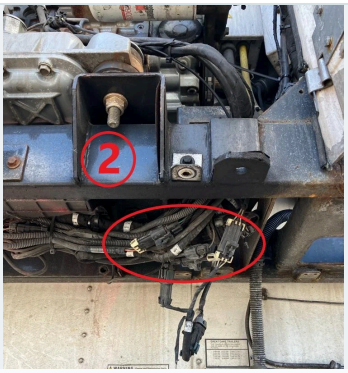


Module plug and ground point.

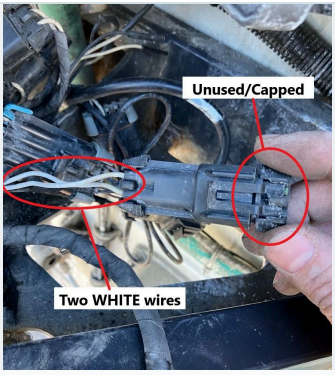
Connector Location Varies by Unit
For the HAR-00010 connection shown, identify the door-switch plug and its wire labels; its physical location varies with the Carrier model, configuration, and year. It may be behind the controller, down in the belly pan, or elsewhere. These photos are examples, so verify the connector and wiring against the information for the actual unit before connecting.



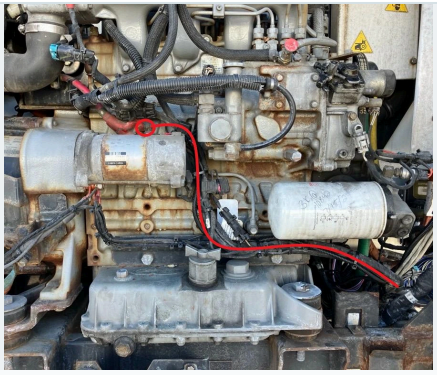
Possible connector location behind the display.



Possible connector location underneath the engine.



Documented connector: two white wires and protective cap.



Power lead routed to the positive starter terminal.

Continue to **install the door sensors** after completing this path.

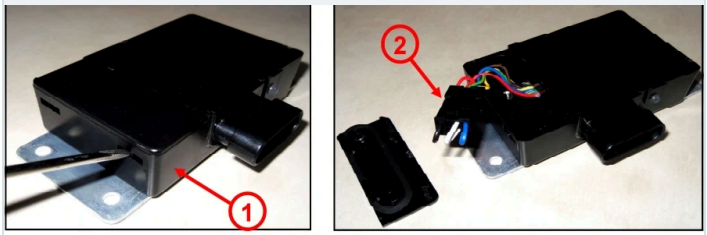
MULTI-TEMPERATURE · VECTOR RELAY KIT

Mount the Receiver and Relay Module

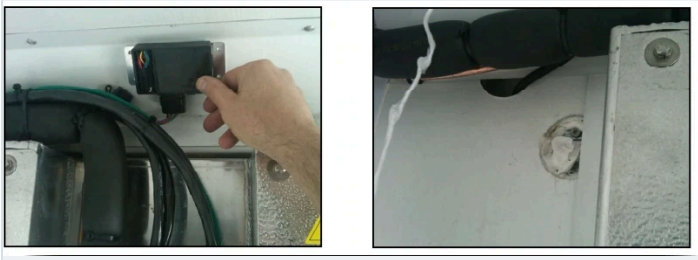
Before starting this wiring path, complete **unit preparation** and **receiver output preparation**.

This path follows the separate extended harness and three-relay module shown in the supplied Carrier Vector multi-temperature instructions. Verify the kit and the unit wiring before applying the example to another model.

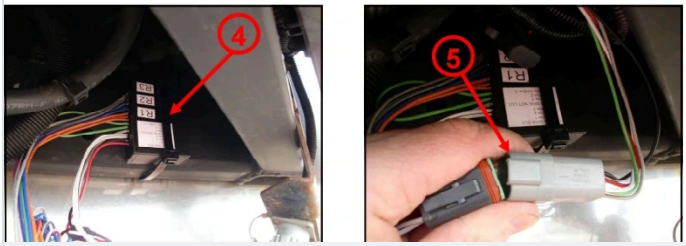
1. Complete the applicable **receiver output preparation** before training.
2. Mount the receiver to the front wall. The supplied multi-temperature manual recommends positioning it approximately one inch from the ceiling when practical. Route, secure, and protect the extended harness.
3. Mount the relay module under the control box in the documented installation.
4. Connect the extended harness six-pin Deutsch connector to the relay module.



Receiver preparation: **1** cover; **2** jumper harness.



Receiver mounting example.



Relay installation: **4** module; **5** six-pin connector.

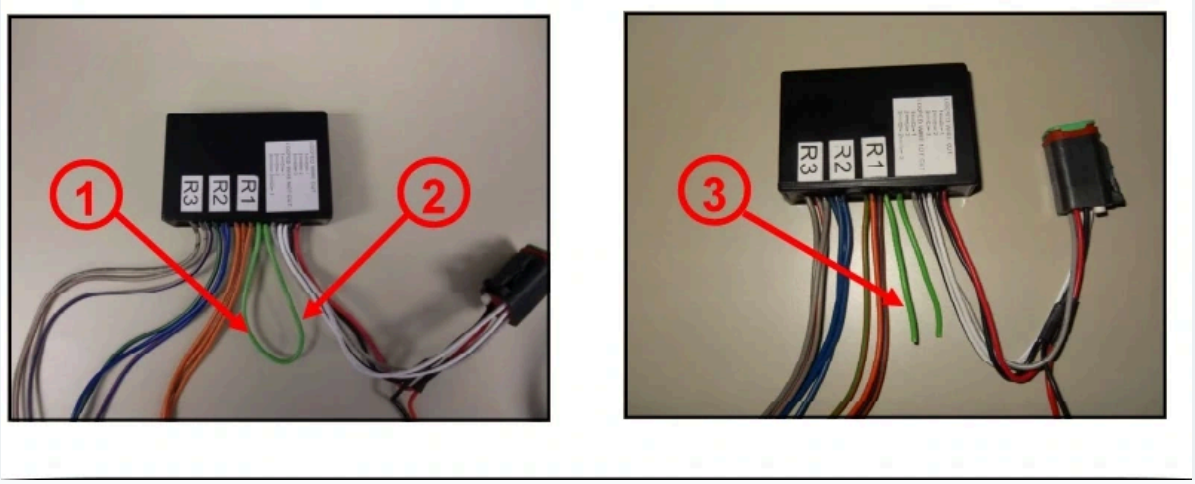
MULTI-TEMPERATURE · VECTOR RELAY KIT

Select the Documented Zone Configuration

The relay module in the supplied Vector instructions has a green loop. The required loop condition depends on the documented zone and door arrangement. Use this table only for the corresponding relay kit.

Documented Configuration	Relay Outputs Used	Green Loop
1 zone / 1 door	Relay 1	Leave connected
2 zones / 3 doors	Relays 1 and 2	Leave connected
3 zones / 3 doors	Relays 1, 2 and 3	Cut the loop

Check the Arrangement Before Changing the Loop
The source documents these three arrangements. Confirm the harness revision and actual door-to-zone wiring for other arrangements; do not infer the loop condition from the number of sensors alone.



Green loop: **1–2** intact; **3** cut for the documented three-zone/three-door configuration.

MULTI-TEMPERATURE · VECTOR RELAY KIT

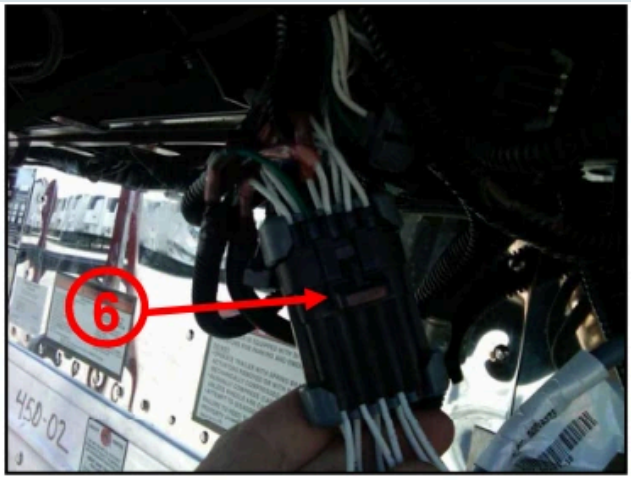
Connect the Relay Outputs and Power

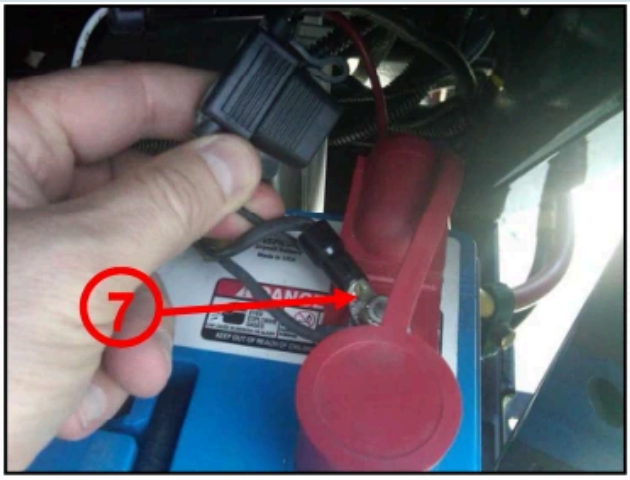
Follow the Carrier unit's door-switch wiring for each applicable compartment. The supplied SensorLINK table identifies relay wire pairs but does not provide universal Carrier terminal numbers.

Relay	Relay Wire Pair	Documented Use
Relay 1	Orange/purple and orange/green	Zone 1 door-switch wiring
Relay 2	Blue/purple and blue/green	Zone 2 wiring when used
Relay 3	Gray/purple and gray/green	Zone 3 wiring when used

For one zone, the source says not to connect Relay 2 or Relay 3. For the documented two-zone/three-door arrangement, it says not to connect Relay 3.

1. Identify the unit-side door-switch wiring point for each required zone using the correct Carrier schematic.
2. Connect the applicable relay pairs to the corresponding zone wiring; protect all connections and unused wires.
3. For the documented extended harness, route the power wires to the battery. Connect the **3-amp fused lead to the +12 V stud** and the **black wire to the battery negative stud** as specified in the supplied instructions.
4. Secure and protect the wiring, then reconnect power only when ready for setup and testing.





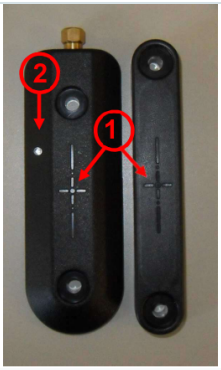
6 Carrier wiring point; **7** fused positive battery connection.

Continue to **install the door sensors** after completing this path.

DOOR SENSOR AND MAGNET

Mount and Align Each Door Sensor

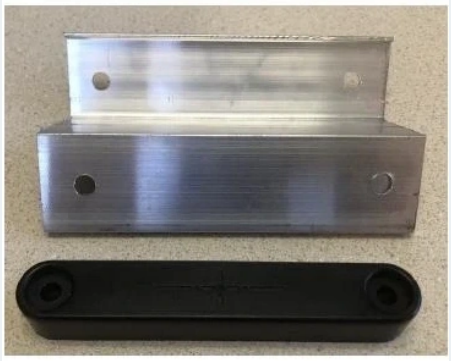
1. Mount each transmitter to a stationary surface inside the trailer or truck body, and mount its magnet to the corresponding door. Mount the sensor as high as practical and position its LED where visible.
2. With the door closed, align the crosshair marks and set a **1/4-inch gap** between transmitter and magnet. Do not place metal between them.
3. Use appropriate non-ferrous material for a fabricated bracket. Secure the antenna inside the trailer and protect it throughout door travel.
4. For the roll-up-door Z-bracket example shown, the supplied installation calls for rivets rather than Tek screws to attach that bracket to the door and recommends tri-fold rivets. Verify the correct hardware for the trailer and bracket being used.
5. Check that each sensor, magnet, bracket and antenna remains secure and clear as the door opens and closes.



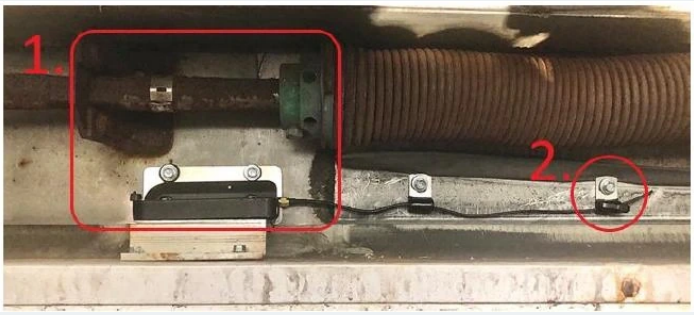
1 alignment marks; **2** transmitter LED.



Transmitter and mounting-plate preparation.



Magnet and Z-bracket before assembly.



Roll-up-door header example.



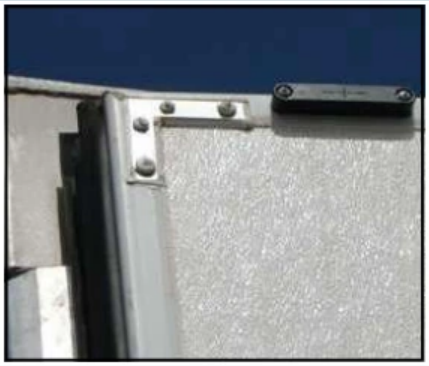
Roll-up-door magnet and bracket example.



Tri-fold rivets shown in the supplied roll-up bracket example.



Swing-door mounting example.



Swing-door magnet mounting example.



Additional roll-up-door example.

Open the Door-Switch Settings

Before Restoring Power: Follow the safety instructions above and keep people clear of moving parts. Isolate power again before working on wiring or connections.

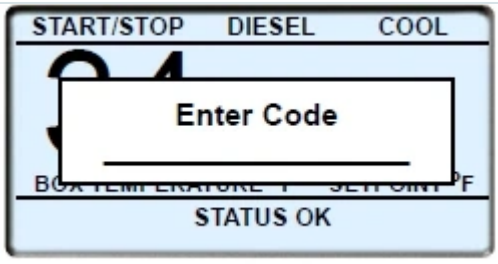
The following images and steps show the APX controller in the supplied installation and the Carrier X4 7700 service manual. Menus, access, and available settings can vary by unit and software. Record the existing settings and follow the fleet-approved configuration.

1. With the unit powered for controller setup, **press and release the two outside soft keys together**. Within five seconds, press the = key. The display acknowledges that Advanced User Mode is enabled.



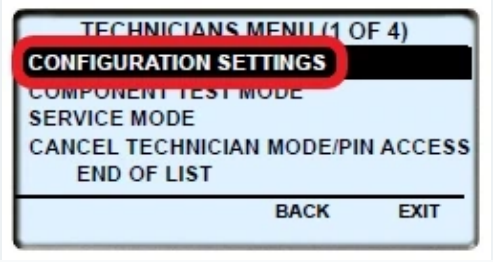
Press and release the two outside soft keys together, then press = within five seconds.

2. Press **MENU** until **TECH MODE** appears, then select it.
3. At the **Enter Code** prompt, enter the authorized technician PIN. The X4 7700 manual lists the factory master PIN as **7435**: press soft keys **3 + 4** together, then **4**, then **3**, then **1 + 4** together. Press = to enter the Technicians Menu. A unit may have different access settings.

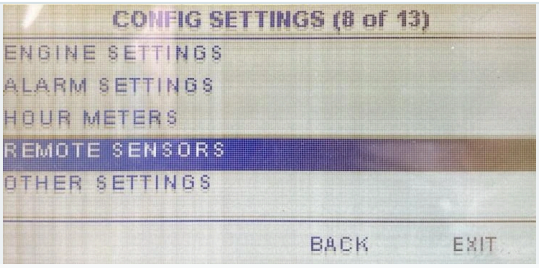


Enter the technician PIN when the Enter Code prompt appears.

4. Select **CONFIGURATION SETTINGS**, then scroll to and select **REMOTE SENSORS**.

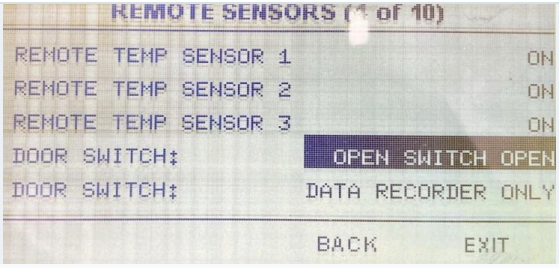


Select Configuration Settings from the Technicians Menu.

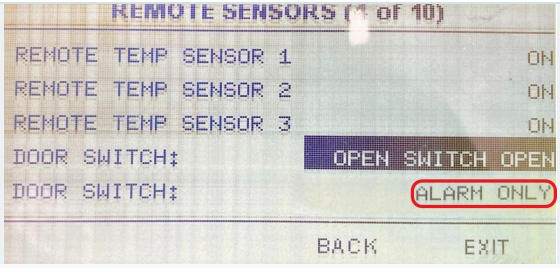


Select Remote Sensors.

5. Scroll to **DOOR SWITCH**. The supplied installation shows **OPEN SWITCH OPEN** for the input and **ALARM ONLY** for the door-open response. Confirm the relay contact state and fleet-approved response for the actual unit before changing either setting.



Documented example: Door Switch set to OPEN SWITCH OPEN.



Documented example: door-switch response set to ALARM ONLY.

CARRIER APX CONTROLLER

Choose the Door-Open Response

Carrier's X4 7700 service manual lists the following response choices. Availability and wording vary by unit and software; check the applicable service manual and fleet instructions.

Response	Documented X4 7700 Behavior
ALARM ONLY	Displays a warning when the door input indicates open.
UNIT SHUTDOWN	Displays a warning and shuts the unit down, subject to applicable configuration.
LOW ENGINE SPEED	Forces the engine to low speed when the door input indicates open, subject to applicable configuration.
DATA RECORDER ONLY	Records door events without a MessageCenter alarm or message.

The supplied HAR-00010 installation uses **OPEN SWITCH OPEN** for its documented input and **ALARM ONLY** for its example response. Confirm the actual relay contact state and approved response; these choices are not a universal setting for every Carrier installation.

Review applicable delay, override, and ambient-temperature conditions. On the X4 7700, the door/remote-switch alarm delay can postpone the alarm while the selected shutdown or low-speed action still occurs. Multi-temperature behavior must be checked against the affected compartment and actual controller configuration.

For Carrier alarm descriptions, use the **Carrier APX and Advance Alarm Guide**. For unit-specific wiring and settings, use the applicable Carrier service manual.

SENSOR TRAINING

Train the Module to the Door Sensors

> **Start with Every Door Closed**
> Do not operate or train other door sensors within range while this module is training. Starting with a door open can reverse the reported door position.

1. Verify all doors are closed. Remove the SensorLINK jumper plug for **10 seconds**; the module LED continues blinking green.
2. Replace the jumper plug. A solid green module LED indicates the approximately one-minute training period.
3. Open Door 1. The LED alternates one red blink and one green blink to indicate that Door 1 is trained. Close the door; the LED returns to solid green while training remains active.

4. For additional doors, repeat the open-and-close sequence one door at a time in the intended door-number order.
5. Wait for the LED to blink green, indicating training mode has ended. Open and close each door individually to verify its blink pattern. Reinstall the jumper cover.

Sensor	Open-Door Blink Pattern	Receiver Output	Wire
Door 1	1 red ●	Zone 1	White
Door 2	2 red ●●	Zone 2	White/black
Door 3	3 red ●●●	Zone 3	Gray
Door 4	4 red ●●●●	Zone 3	Gray

The module supports up to four sensors; Doors 3 and 4 share the Zone 3 output. Confirm the relay kit and unit wiring support the actual door-to-compartment arrangement. The animation illustrates blink counts; timing may vary.

FINAL VERIFICATION

Check Every Door and the Carrier Response

- All receiver, relay, sensor, magnet, and bracket mountings are secure.
- The antennas and harnesses remain inside the trailer, protected and clear of moving or hot components.
- The correct harness, fuse, power, ground, and unit-side door connections are installed for the unit.
- Each door has the correct alignment and 1/4-inch closed-door gap, with no metal between the transmitter and magnet.
- With doors closed, the module indicates closed. Open each door individually and confirm its red-blink count; close it and verify the indication returns.
- Verify the Carrier controller or connected device sees each applicable door and responds according to the approved configuration. For multi-temperature units, check the affected compartment and other compartments.
- Reinstall the jumper cover, display, and all panels; secure wiring and return the unit to service after a successful check.



Example multi-compartment Carrier display showing a door-open message; screens vary by unit.

If the Result Is Unexpected

Compare the door position with the transmitter and module LEDs, then inspect the installed harness, relay, and controller input. Review the response setting before assuming the sensor failed. For step-by-step fault checks, see the **SensorLINK 200x diagnostic guide**.

RELATED RESOURCES

SensorLINK Guides and Support

Choose a guide for your equipment or the service you need.

SERVICE ↗
Diagnostics & Troubleshooting
Check symptoms, lights, wiring and controller response.

SERVICE ↗
Door Sensor & Module Replacement
Replace a door sensor or receiver and retrain every door.

INSTALLATION ↗
Thermo King SR-4 Installation
Single- and multi-temperature installation.

WARRANTY · PDF ↗
Warranty Claim Form
Claim form and limited warranty terms.

Need help? **Contact Transport Wireless Technologies**.

REGULATORY INFORMATION

FCC Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.