



BLACKBERRY RADAR-M

ITA100-1

February 2020

Container, Dry Van, Insulated Trailers (Barn Doors)

Installation Guide

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1 Overview

This guide provides detailed instructions for installing and activating new BlackBerry Radar-M modules. It includes three main tasks:

Task 1: Get ready for installation (see Section 2)

Task 2: Install a BlackBerry Radar-M module (see Section 3)

- Match the module identifier with the asset identifier on the installation worksheet
- Install the module onto the trailer/container

Task 3: Uninstall a module (see Section 4)

Complete BlackBerry Radar documentation is available online when you log in to BlackBerry Radar Dashboard. For instructions on how to configure the BlackBerry Radar Dashboard or how to activate newly installed devices, see the online documentation.

2 Get ready for installation

To get ready for installation, you need to obtain a worksheet where you can record the pairing of each Radar-M module to its asset (that is, the trailer/container that the module will be installed on).

For detailed instructions, log in to the BlackBerry Radar Dashboard and access documentation from the main menu.

3 Installing BlackBerry Radar-M modules

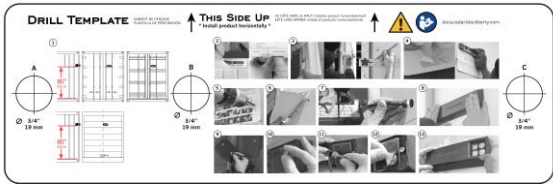
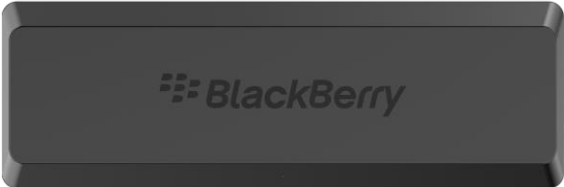


You may have a large number of BlackBerry Radar-M modules to install. Follow the instructions in this section to:

- Match each module identifier to its asset identifier
- Install each module

Note: You must install each hardware module horizontally. Vertically positioned modules are not supported.

3.1 Prepare to install

Inside the package of each BlackBerry Radar-M device, you should have the following components:

Drill template	
External module	
Internal module	
Two screw assemblies--M6 x 65 Supports doors up to 2" (51mm) thick.	

If you are missing any of the above components in your package, contact your BlackBerry Sales Representative.

3.1.1 Optional screw kits

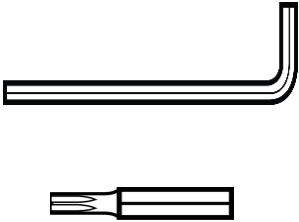
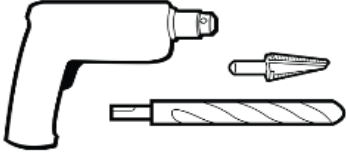
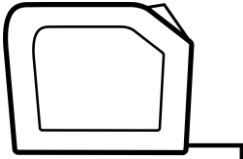

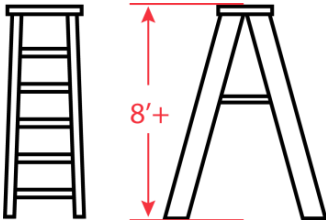
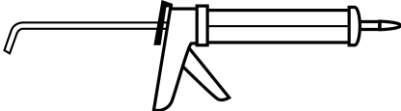


Specialized screw kits are available for specific product installations, including insulated trailers and containers (i.e. refrigerated and heated trailers) which require longer screws.

If your installation requires a specialized screw kit, please contact your BlackBerry sales representative.

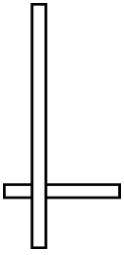
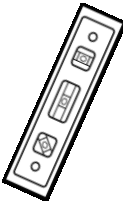

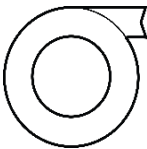
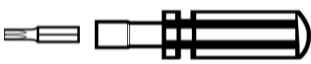
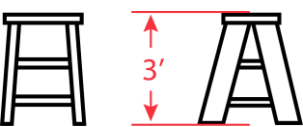


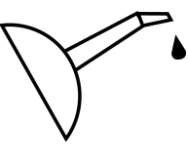
Screw Kit	Kit Contents
Reefer Screw Kit	QTY: 2 screw assemblies. M6 x 110. For doors from 2" to 4" (51-102mm) thick.

3.2 Installation Tools

Required tools to complete the installation:

<p>Allen key or Hex Drive Bit (5 mm)</p> 	<p>Drill and 3/4" (19mm) Drill Bits</p>  <p>-3/4" (19mm) Step Drill Bit recommended for faster drilling on non-insulated trailer doors and intermodal containers.</p> <p>-3/4" (19mm) Conventional Drill Bit required for thicker insulated trailer doors.</p>	<p>Tape Measure</p>  <p>Safety Glasses</p> 
<p>Ladder</p> 	<p>Caulking Gun and Polyurethane Sealant</p> 	<p>Pencil or Marker</p>  <p>Large Screwdriver (Flathead)</p> 

Recommended tools to complete the installation:

T-Square 	Pocket Level 	Towel 	Tape 	Torque Screwdriver with Hex Bit (scale range of 1 N-m to 5.5 N-m or 8 in-lb. to 49 in-lb.)  *To check compliance with torque specifications for fasteners.
Small Step Ladder  -For more convenient installation inside of container.	Alcohol 	Metal Putty Knife 	Cutting Lubricant  -For longer drill bit life and faster drilling speed on intermodal containers.	

3.3 Matching a module identifier to an asset identifier

In order to track an asset (trailer/container), the Radar-M module that is installed on the asset must be associated with the asset in the BlackBerry Radar Dashboard. It is, therefore, very important to keep a clear record of which Radar-M module is installed on which asset.

The Dashboard application tracks modules and assets using 'identifiers'. The asset identifiers are entered into the application when you add the assets, and are listed on your installation worksheet. The identifier for each Radar-M device is printed on two labels attached to the back of the external module. The module identifier also serves as the serial number (S/N) for the device.

To match a module identifier with an asset identifier:

1. Locate the module identifier for your device. The module identifier is printed on two labels attached to the back of the external module.

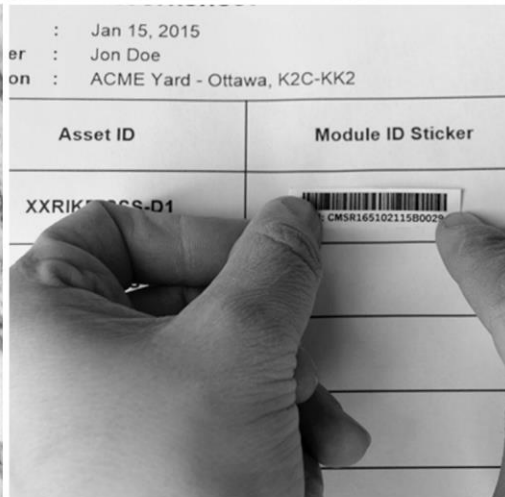


2. Locate your installation worksheet. Remove the partially attached label from the rear of the external module and place it on your worksheet, next to the asset identifier the device will be paired with.


Installation Worksheet

Date : Jan 15, 2015
Installer : Jon Doe
Location : ACME Yard - Ottawa, K2C-KK2

Asset ID	Module ID Sticker
XXRIKD-SSS-D1	
XXRIKD-SSS-D2	
XXRIKD-SSS-D3	
XXRIKD-SSS-D4	
XXRIKD-SSS-D5	



Installer : Jon Doe
Location : ACME Yard - Ottawa, K2C-KK2

Asset ID	Module ID Sticker
XXRIKD-SSS-D1	

3.4 Module installation

You install the external module on the exterior of the **right-hand** trailer/container door, and the internal module on the inside of the **right-hand** trailer/container door.

Start your installation on the exterior wall of the **right-hand** trailer/container door.

Note: You must install each hardware module horizontally. Vertically positioned modules are not supported. For most accurate sensor calibration, installation on empty trailers/containers is highly recommended.

Caution: If installing on a trailer/container with barn doors, be sure to secure any open doors to your trailer/container, prior to starting the installation, to avoid injury from swinging doors.

Important: Please do not perform the battery connection process until you are ready to install and associate the BlackBerry Radar modules on your asset. Once the battery is connected, please complete the module installation and association, as soon as you can, to conserve battery life.

1. Remove the device from the package. Remove the cardboard spacers and place them in the device box.



2. Separate the internal module from the external module. To completely separate the two modules, you will need to guide the cable connector through the hole on the rear of the internal module.



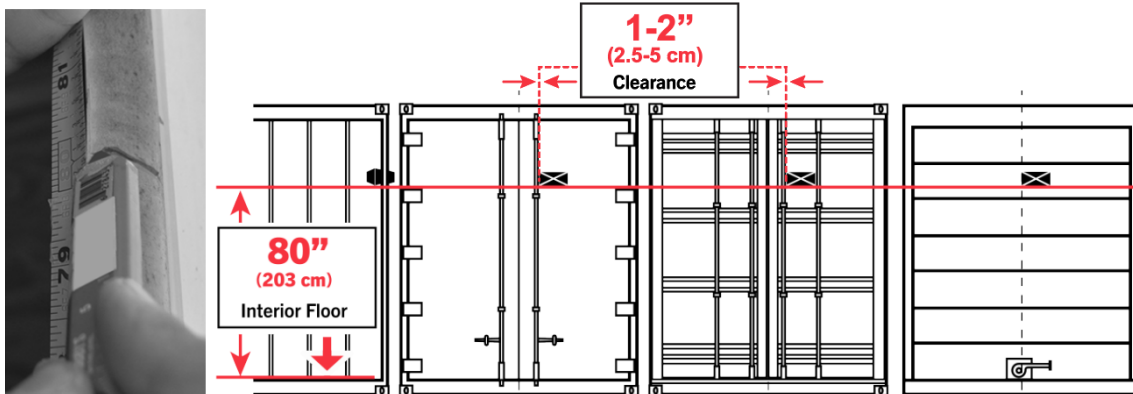
3. Remove the screws from the external module.



Note: Even if you do not plan to use the standard screws that have shipped with the device for your installation, it is important that you remove these screws from the external module, prior to installing the device. Do not install device with screws stored in this module.

4. After ensuring the installation surface is clean, mark the height where the device will be installed on the door of the trailer/container.

- The bottom of the device should be 80" (203 cm) * above the interior floor.
- The device must be level.
- When installed on a roll-up door, mount the device as close to the center of the trailer/container as possible.
- When installing on trailers or containers with barn doors, you must mount the device on the **right-hand** door, and as close to the inside edge of this door as the door construction allows. See illustration, below.
 - If your door has external locking bars, ensure there is 1-2" (2.5-5cm) of clearance between the left side of the device and the right edge of the bar.



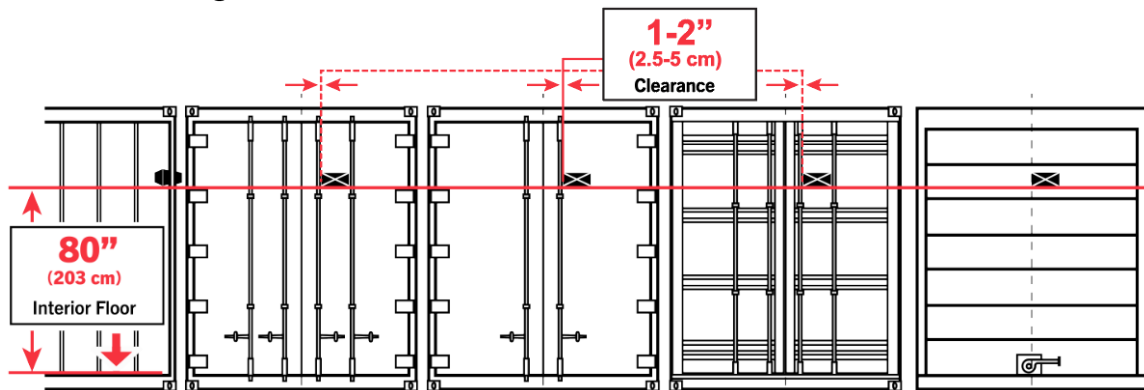
* **Note:** Location of the module is critical to its performance. Please ensure the bottom of the device is installed 80" (203cm) above the interior floor.

The 80" (203cm) placement may be adjusted slightly for these cases:

- Roll-up doors—Adjust device placement to allow proper clearance between the device modules and any door hardware. Ensure modules fit completely on the door panel and will not impede door operation.
- 8' and 8'6" containers—Some of these containers may have internal door features that will require a slightly lower device placement. Please adjust device placement so the modules fit completely on a flat surface.

In these installation scenarios, we recommend performing a quick placement check with the internal module on the interior of the door to confirm the placement height for your specific installation and to ensure adequate clearance between the device module and door construction.

The following images illustrate the recommended positions of the module on different door types. **Please note:** the 80" (203cm) placement dimension may be adjusted slightly for installation on roll-up doors to allow proper clearance between the device modules and hinge hardware of the door.



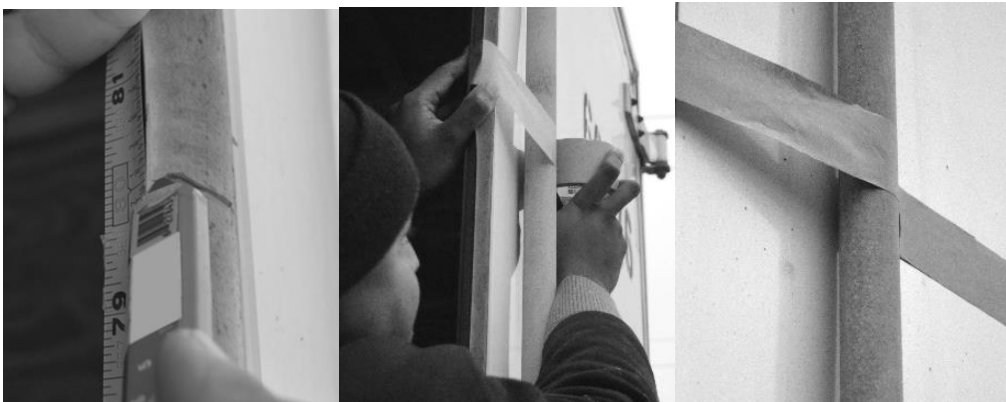
- You may take the 80" measurement either from the outside or from the inside of the container door. Make sure you start the measurement from the level of the container floor, *not* from the bottom of the door.
- If you measure your mark from the interior of the container floor, you may use the following techniques to transfer your mark from the edge of the door to the exterior surface of the door.

Technique 1: You may use a T-square to extend the mark from the edge of the door, to the exterior surface of the container. Using the T-square as a guide, draw a horizontal line approximately 12-14" (30-35cm) in length, in the area you plan to install the device, with your pencil or marker. This line will be used, in the following steps, to position the drill template.

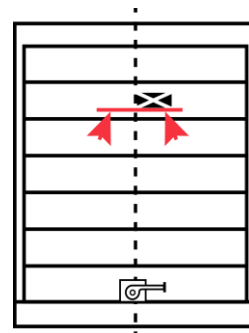
Tip: To avoid leaving a permanent mark on your trailer or container after the device installation is complete, we recommend using a pencil or non-permanent marker to create the guideline.



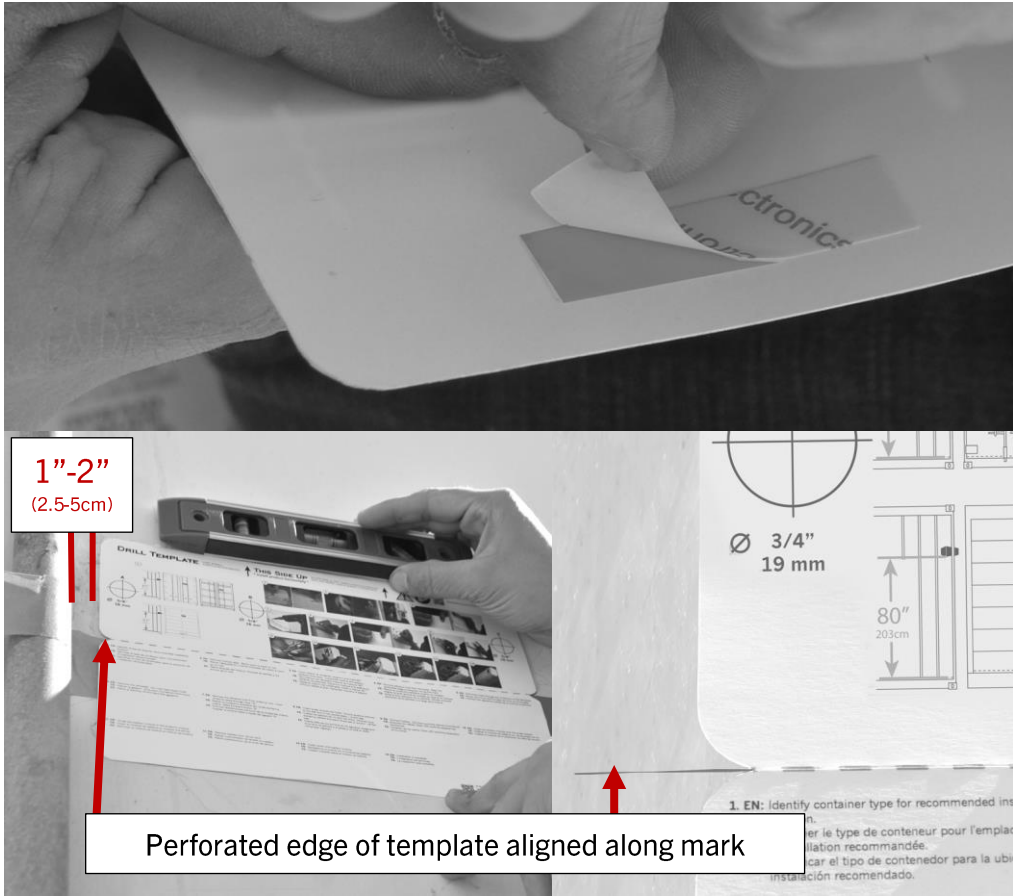
Technique 2: Alternatively, you may use tape to extend the mark from the edge of the door, to the exterior surface of the container. This can be helpful if you do not have enough clearance to fit the T-square between the door and the locking bar.



Tip: For trailers and containers with roll-up doors--once you have identified the desired placement height for your installation--take two measurements for location, marking each point on the exterior wall, then draw a straight line between the two points. This will ensure your line is parallel to the bottom of the door.



5. Remove the adhesive liner from the drill template. The adhesive at the back of the template ensures that it stays on the door surface for accurate drilling of your holes. Align the perforated edge of the template along your mark. Allow approximately 1-2" (2.5-5cm) of clearance between the left side of the template and the edge of the door bar. Ensure the template is level.



6. Drill a hole through each cross-hair indicator on the template.



Note: For shortest drilling time, and burr-free holes, we recommend using a step drill bit. Step drill bits also offer improved drilling speed through the harder steel used on intermodal containers. To further shorten drilling time and prolong the life of your drill bit, you may wish to apply Cutting Tool Lubricant to your drill bit prior to drilling.

For refrigerated or heated trailers, if you choose to begin the drilling process with a step drill bit, you will need to switch to a conventional straight drill bit that is long enough to completely penetrate the increased depth of the door.



7. Remove the template. You now have three holes in the exterior wall. If there are any burrs around the holes, remove them at this time. Also, remove any dust or debris left over from the drilling or de-burring operations.



3.4.1 Exterior installation: external module

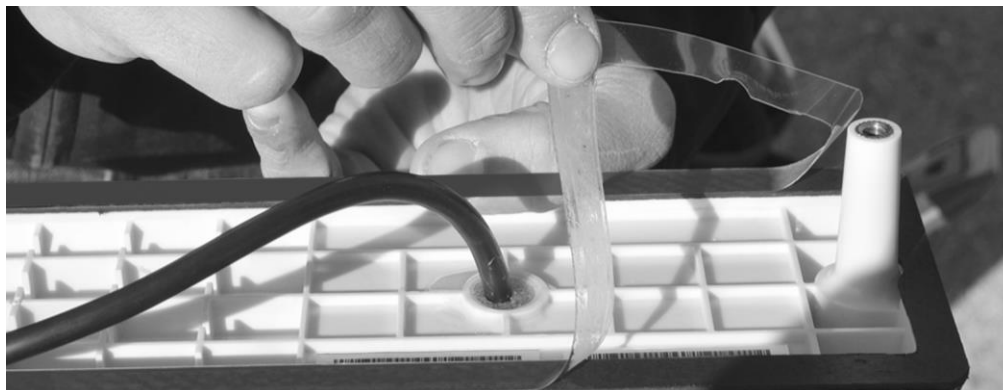
Note: Before proceeding to the next steps, please take a moment to ensure your installation surface is completely clean and dry--and free of any dust, oils, debris, or peeling paint.

- For metal doors, we recommend cleaning the installation surface thoroughly with alcohol, prior to installing the device.
- For wood doors, a flat putty knife is helpful to quickly remove peeling paint from the immediate installation area.

A clean surface will aid device installation by allowing the mounting adhesive to stick to the surface.



8. Remove the adhesive liner from the rear of the external module. **Important:** Leaving the adhesive liner on increases the possibility of water damage to the device.

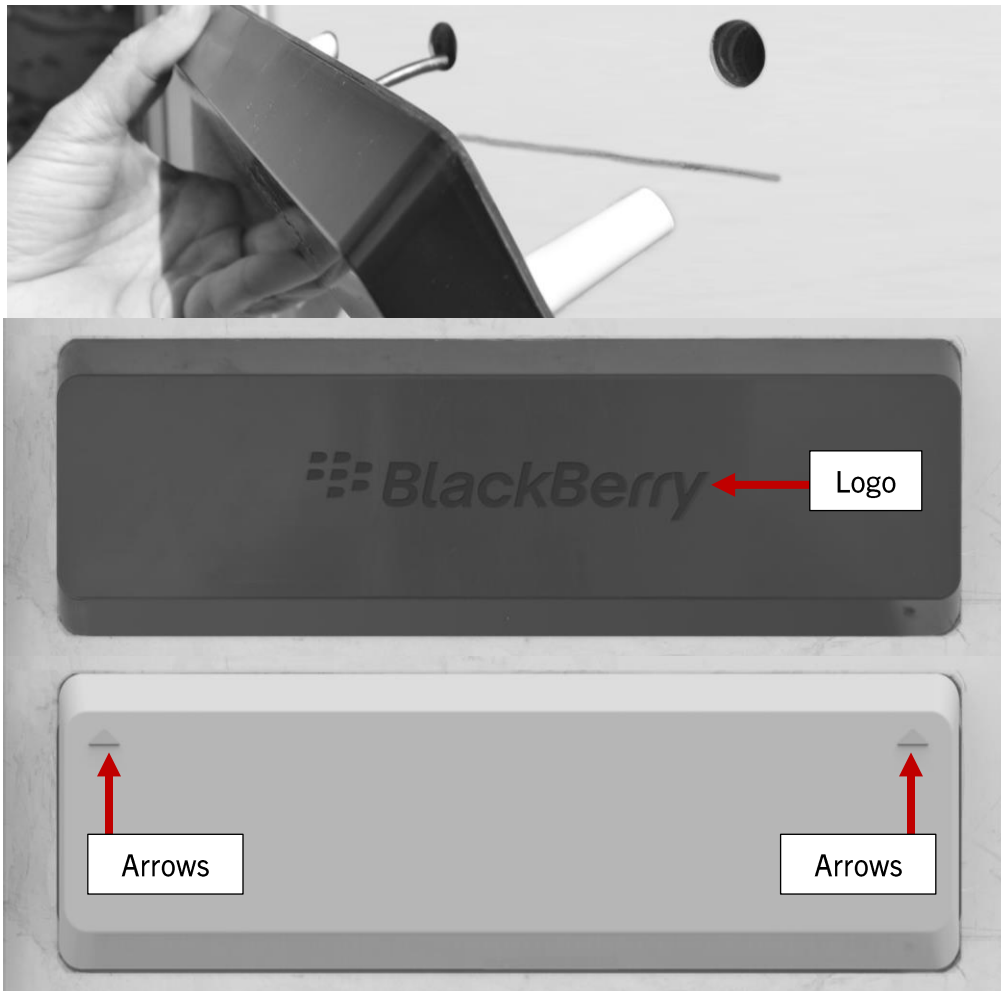


9. Locate the cable and guide the cable connector and the cable through the middle hole (Hole B on the drill template).

Tip: Be sure to remove any burrs from around this hole prior to inserting the cable. Burr-free holes will prevent damage to the cable or connector jacket.



10. Insert the screw bosses into the remaining two holes. Ensure the external module is not upside down. Depending on your model, you can confirm proper orientation by:
 - A. Ensuring the BlackBerry logo on the external module appears, as shown.
 - B. If your device does not have a logo, ensure the arrows are pointing up.



11. Apply firm pressure to the external module for 30-45 seconds to ensure it adheres to the wall. The adhesive will hold the external module in place while you complete the installation.



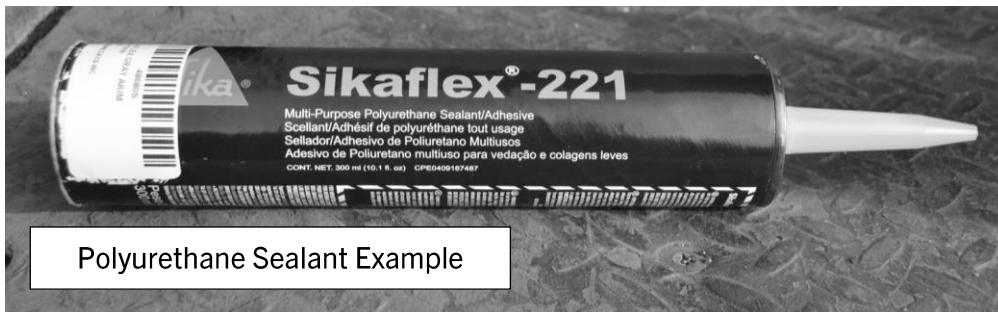
Tip: For roll-up doors, it is recommended that you slowly lift the door to check the clearance between the external module and the door frame through the door's range of travel. If there is enough clearance, please continue.



3.4.2 Interior installation: internal module

Note: To provide protection against water ingress, fill the hole around the cable with polyurethane sealant. Following this procedure will prevent water that accumulates along the edge of the device and door surface from falling behind the external module and entering the device along the cable path.

IMPORTANT: Before applying the sealant on an insulated trailer (reefer or heater), please ensure the polyurethane sealant you will use is compatible with polyurethane and polystyrene foam, as the insulation in most reefers are made from these materials. Some sealants may degrade these materials.



12. From inside the trailer, locate the hole with the cable. Dispense the polyurethane sealant in the hole, around the entire cable.

Tip: To prevent the sealant from leaving the hole and getting onto the internal door surface, we recommend stopping the fill approximately 1/8" (3mm) before the internal door surface.



13. If the sealant expands on to the internal door surface, be sure to remove the excess insulation from the door surface. To successfully complete the installation, it is important the device is installed flush to the installation surface. Excess sealant can be removed with a putty knife, and a towel saturated with alcohol.

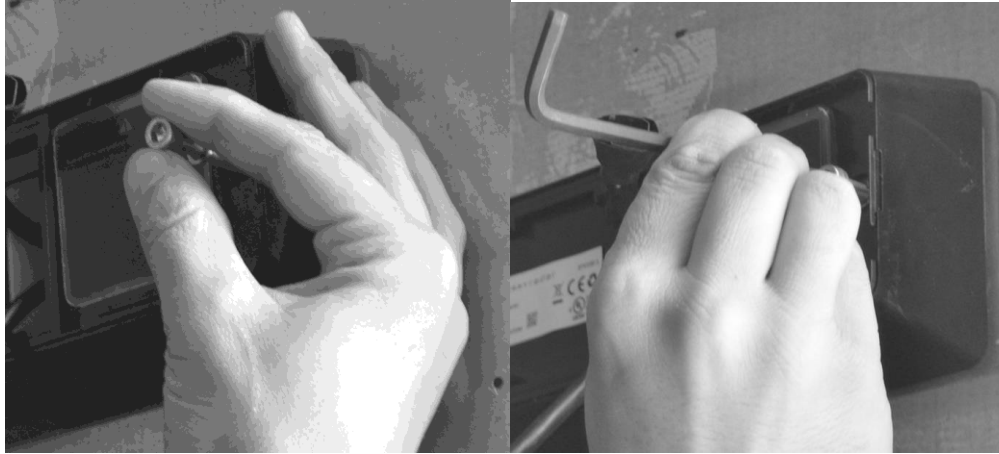


14. From inside the container, locate the cable, and guide the cable connector through the hole at the rear of the internal module. Guide internal module along the cable, towards the door.



15. Place the internal module onto the screw bosses. Use the screws to fasten the external module to the internal module. Do not overtighten the fasteners. Do not exceed 48 in-lb. or 5 N-m.



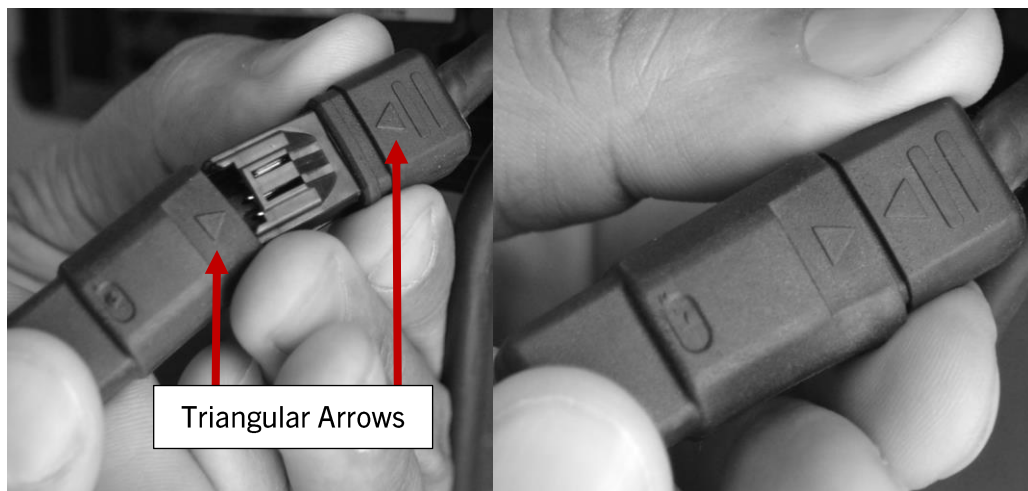


Tip: For faster screw installation, you may install using a 5mm hex bit on a cordless drill. If you use a drill to install the screws, please use caution to avoid over tightening (do not exceed 48 in-lb. or 5 N-m).

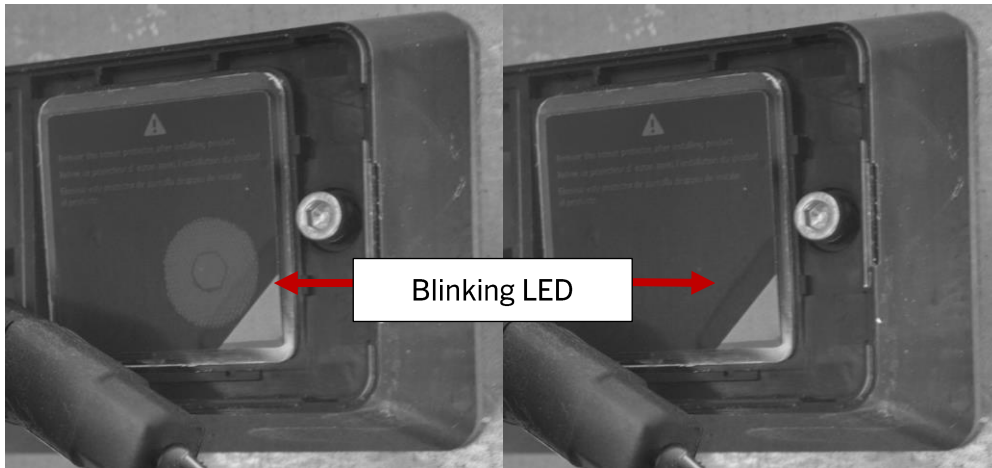
Note: For thicker trailer doors, like those used on refrigerated or heated trailers, the screw bosses will not protrude through the wall. To install the internal module, you will need to place a long screw into the screw hole and use the end of the screw to locate the screw boss prior to fastening the screws.

16. Connect the cables by following these steps:

- Locate the triangular arrows on each connector. Position the cables so those features are pointing to each other.
- Push the cables together. You will hear an audible click once the connector's locking features engage.



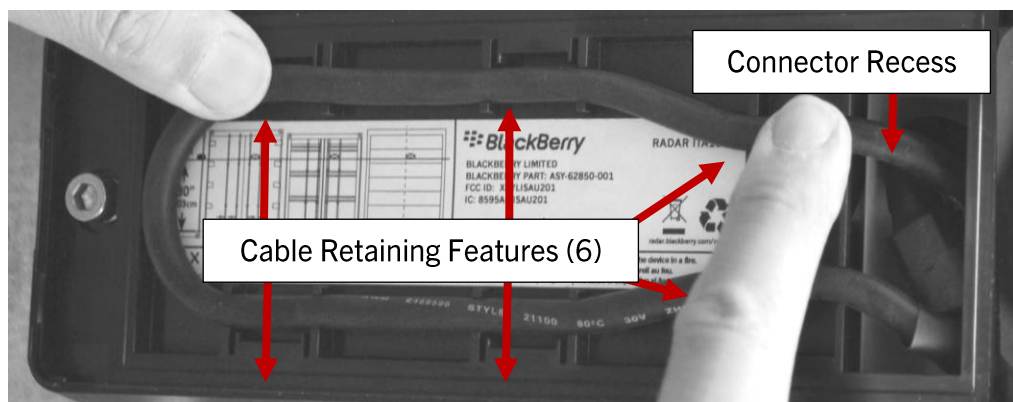
17. After completing the cable connection, the LED will blink for approximately ten seconds. This blinking LED indicates the device is powered on. **Please note:** it can take 20-30 seconds after the cables are connected for the LED to start blinking.



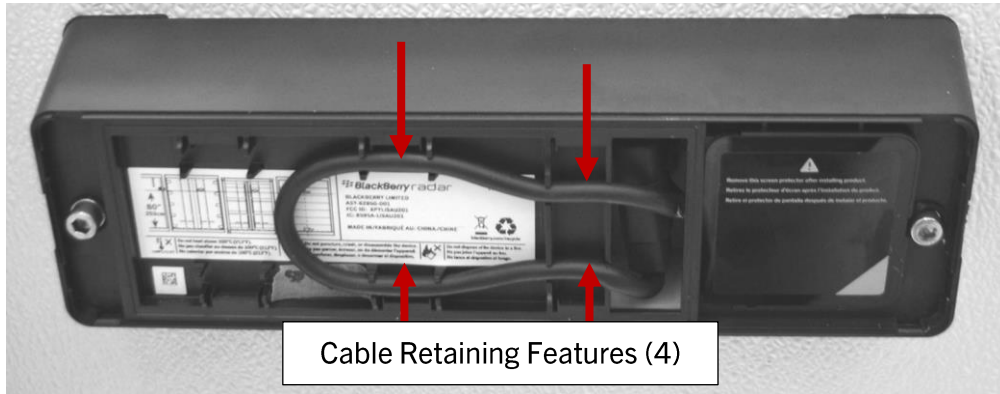
18. Remove the overlay from the sensor lens.



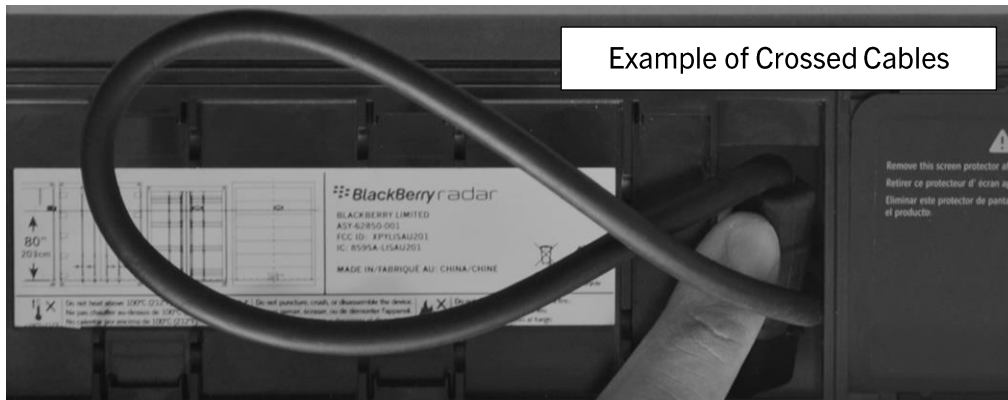
19. Stow the cable connectors in the cable connector recess. Secure any excess cable in the cable retaining features.



Note: When installed on reefer trailers, not all of the cable retaining features will be occupied as more cable will be consumed inside the thicker door. The following image shows the cable management after installation on a reefer door.



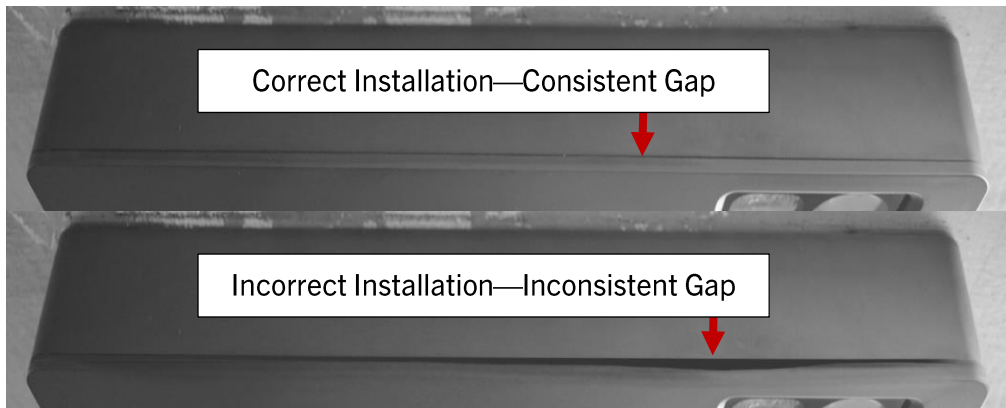
Tip: When placing the cable connectors inside the cable connector recess, take care to avoid crossing the cable over itself. Doing so can make it more difficult to secure the cable and attach the lid.



20. Install the lid onto the internal module. Ensure lid is completely attached to the device and all snaps have been completely engaged.



The following pictures show the difference between a properly installed lid, where all snaps are engaged, and an improperly installed lid.



Tip: If you are finding it difficult to install the lid due to cable interference, you may wish to try the following technique.

Using a screwdriver, or your finger, apply enough force to prevent the cable from lifting.

While holding the cable in place, begin to attach the lid to the module. Starting from the left side and working across the device to the right, snap the lid in to place.



IMPORTANT: After the device has been completely installed, be sure to completely close all doors of the trailer/container. Closing the doors, will begin the process of baselining the cargo load state. For optimal results, be sure to keep the doors closed for 20 minutes to allow adequate time for the process.

4 Removing BlackBerry Radar-M modules

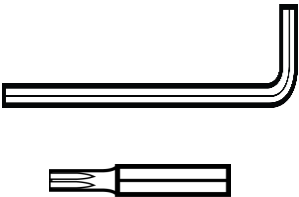

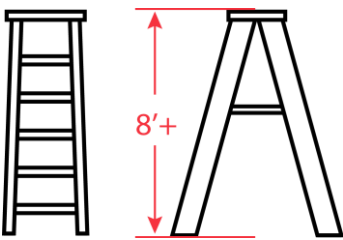




Use this procedure if you need to remove your Radar-M device for servicing or recycling.

For more information on obtaining service for your devices, or recycling and safe disposal of your devices and batteries, contact your BlackBerry representative, or visit the following:

blackberry.com/RadarSupport--for information on service and the recycling and safe disposal of your device and battery.

4.1 Removal Tools

Required tools to complete the removal:

<p>Allen key or Hex Drive Bit (5 mm)</p> 	<p>Drill</p>  <p>-Only required if you elect to remove the screws with a Hex Drive Bit.</p>	<p>Ladder</p> 
<p>Small Step Ladder</p>  <p>-For more convenient installation inside of container.</p>	<p>Safety Glasses</p> 	<p>Metal Putty Knife</p>  <p>Large Screwdriver (Flathead)</p> 

4.2 Module removal

1. Remove the lid by inserting a large, flat head screwdriver into to the recesses on the side of the internal module and applying upward pressure.

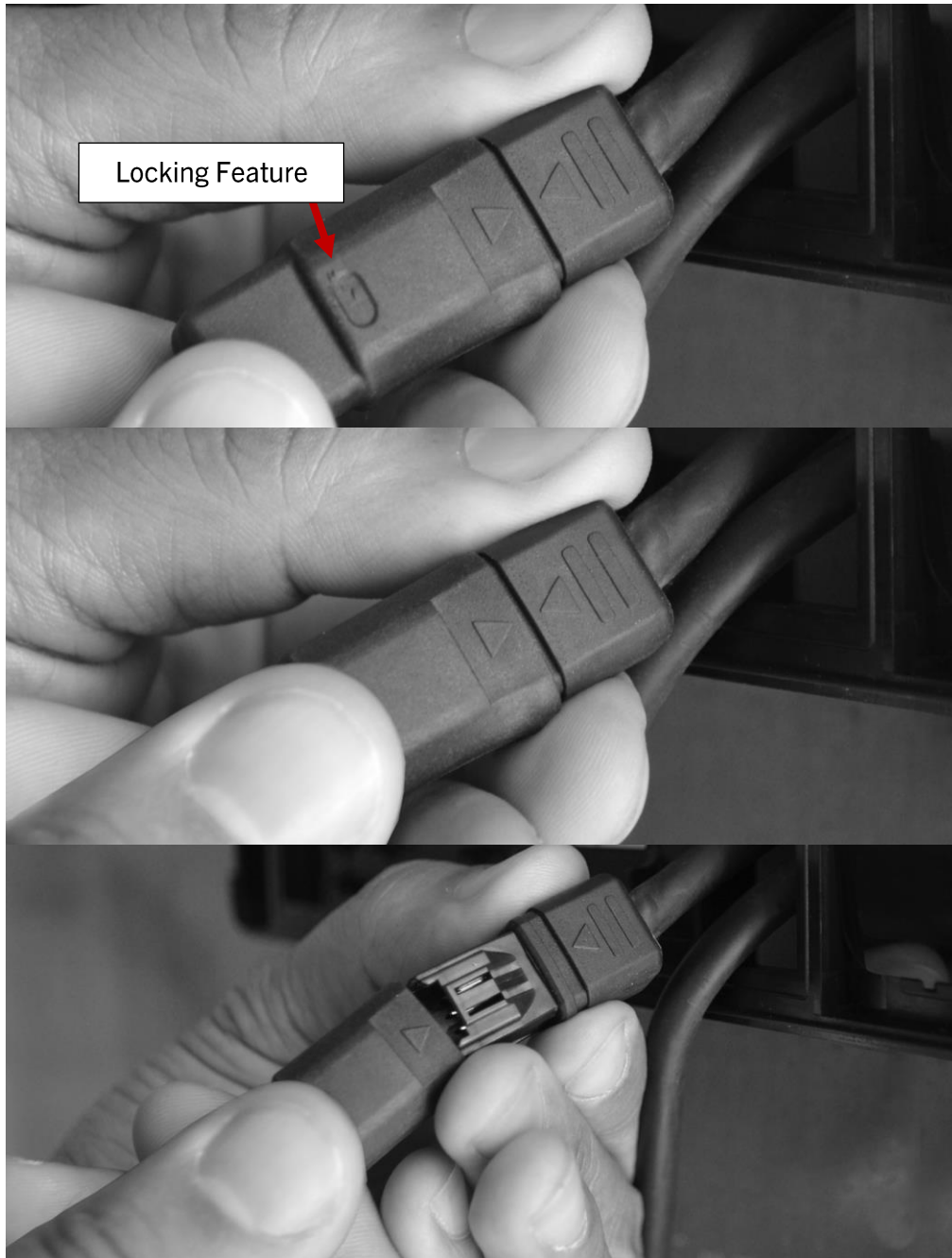


2. Remove the cable from the cable retaining features and remove the cables from the cable connector recess.



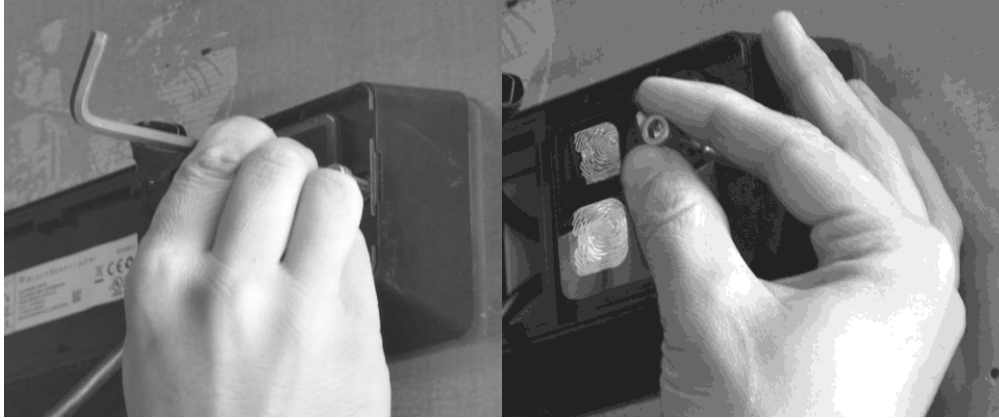
3. Disconnect the cables.

- Position the connectors so the indicator marks are facing you. This will assist you in identifying the location of the connector lock release feature. This feature is the pill-shaped depression near the end of the connector jacket.
- Press and hold the connector lock release feature while pulling the cables apart. This will disengage the connector lock, allowing you to disconnect the cables.



4. Remove the screws from the device.

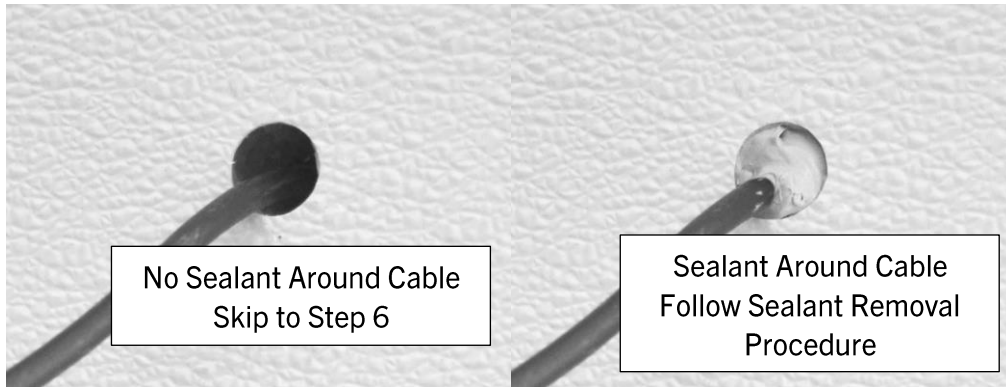
Tip: For faster screw removal, you may use a 5mm hex bit on a cordless drill.



5. Remove the internal module from the door. Guide the internal module along the cable and the connector through the hole on the internal module.



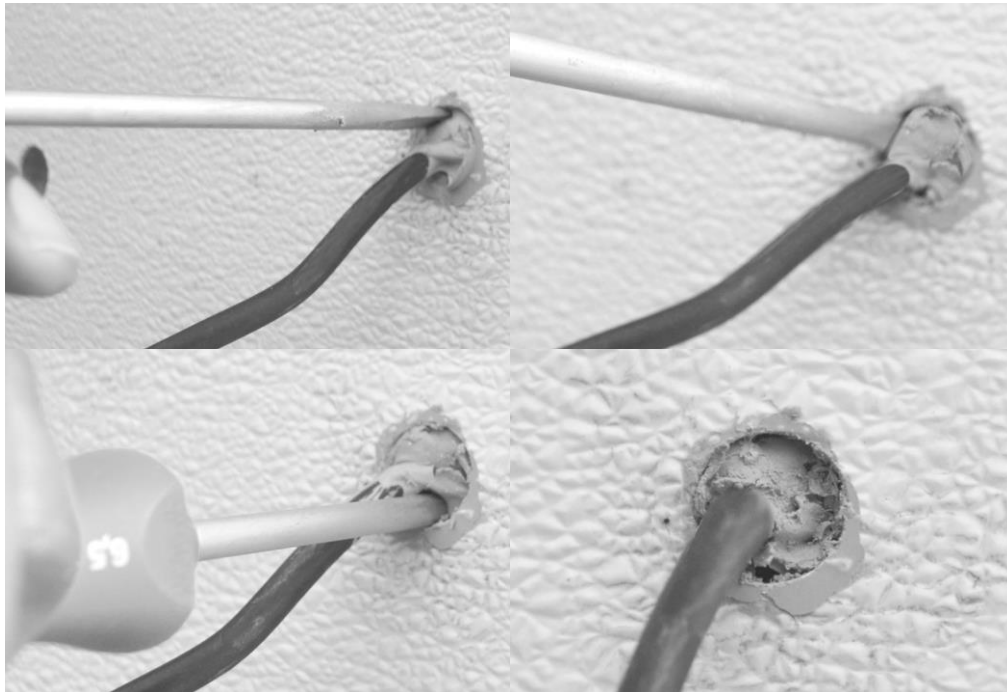
Note: If you did not apply polyurethane sealant around the cable, as detailed in section 3.4.2 of this document, please continue to removal Step 6. If you did apply polyurethane sealant around the cable, please follow the Sealant Removal Procedure listed below.



Sealant Removal Procedure

A. From inside the trailer, check for polyurethane sealant in the hole around the cable. When you find the sealant, follow the following steps to separate the sealant from the door in order to remove the cable.

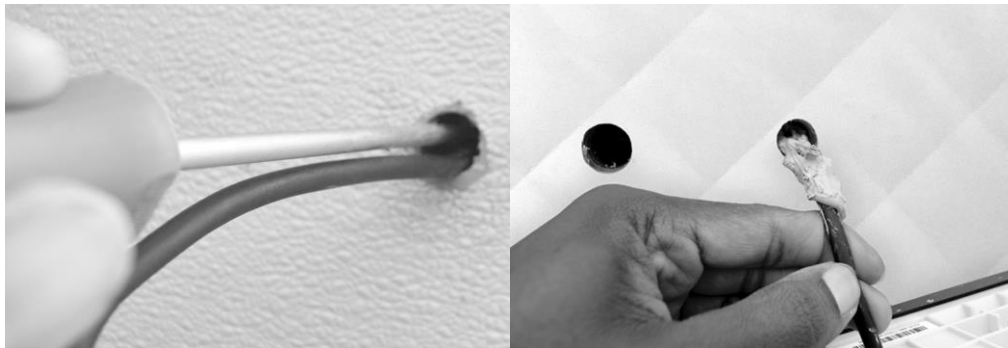
- Insert a flat head screwdriver around the outer edge of the sealant.
- Press the screwdriver completely through the sealant.
- Repeat this procedure around the entire diameter of the sealant to ensure the outer edge of the sealant is completely separated from the door material.



B. From outside the trailer, at the bottom corners of the external module, insert a tool between the back of the external module gasket and the exterior door surface. Apply gentle upward pressure on the tool to separate the module from the door. Repeat until the module is separated from the door.



C. From inside the trailer, use the screwdriver to push on the sealant to force the sealant through the hole and out the rear of the trailer. When enough of the sealant plug is outside the hole, from outside the trailer, pull the sealant from the hole and guide the cable through the hole to complete removal of the module from the trailer.



This completes the Sealant Removal Procedure.

6. Separate the external module from the door using one of the following techniques.

IMPORTANT: Do not attempt to separate the module from the wall using a heat gun. This can damage the device.

Avoid striking the module with a hammer. Repeated strikes with a tool can damage the module and cause it to fall suddenly from the container.

Technique 1: Separate the external module from the door by applying pressure to the screw bosses from the inside of the trailer or container. This works best in cases where the module has recently been installed.

If you use this approach, please note the following:

- Gently holding the cable, while applying enough pressure to the screw bosses to break the bond of the adhesive, will prevent the module from falling from the container or trailer--causing damage to the module, or potential harm to others in your work area. Do not pull the cable or hold the cable so tight that the cable will be damaged once the module is separated from the door.



Tip: If you choose to use Technique 1 for module removal, you may wish to place a rag, or block of wood between your hand and the screw boss for added comfort while pushing on the module.

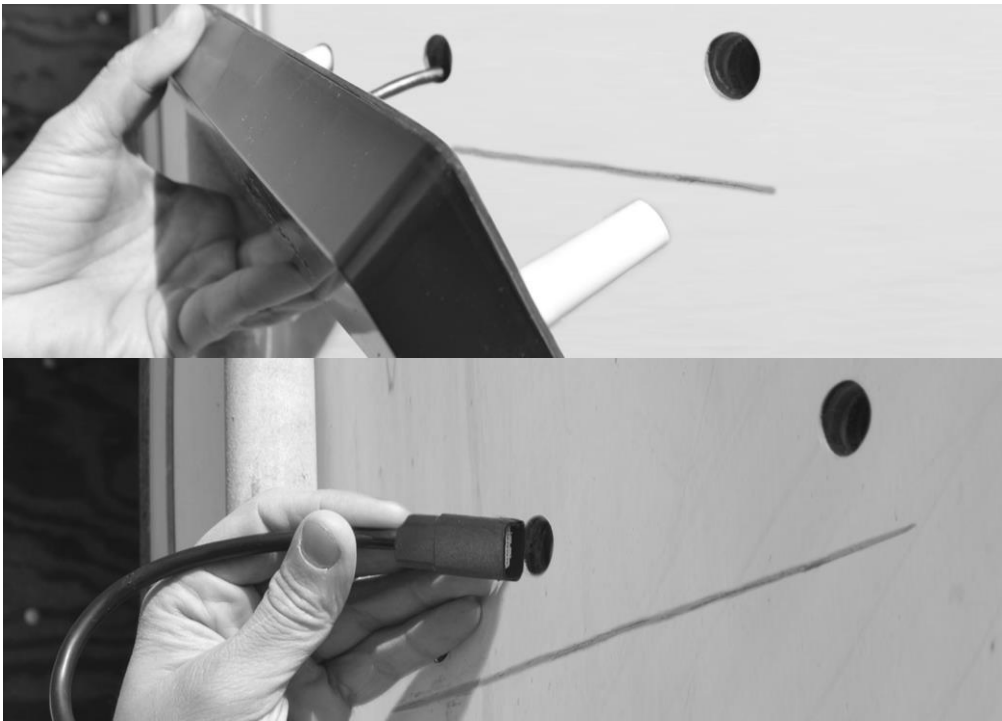
Technique 2: At the bottom corners of the external module, insert a tool between the back of the external module gasket and the exterior door surface. Apply gentle upward pressure on the tool to separate the module from the door. Repeat until module is separated from the door. This technique works best in cases where the module has been installed for a longer period of time and in the case of insulated trailers, where the screw bosses are hidden in the door. If using this approach, please exercise caution to avoid greatly damaging the door surface and the sealing gasket.



Tip: If you choose to use Technique 2 for module removal, a wide flat blade, made from durable material (e.g., a metal putty knife) works well for this purpose.

IMPORTANT: Do not attempt to separate the module from the wall using a heat gun. This can damage the device.

7. Remove the external module from the door. Guide the cable and the connector through the hole on the door. This completes the module removal.

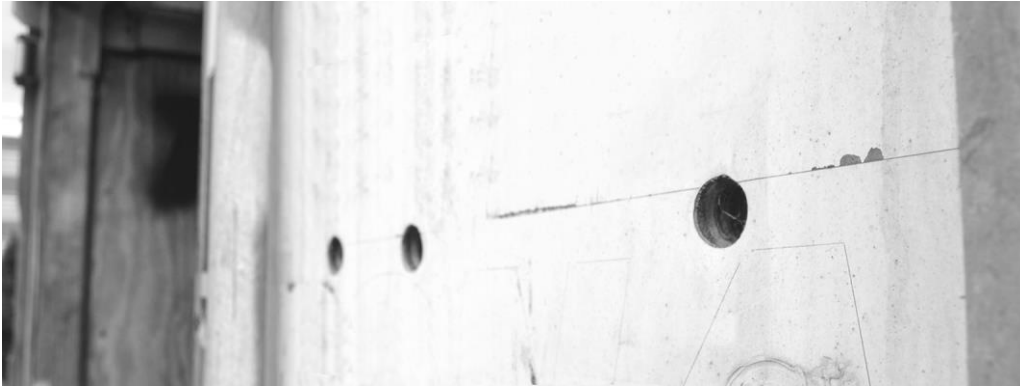


4.3 Door repair

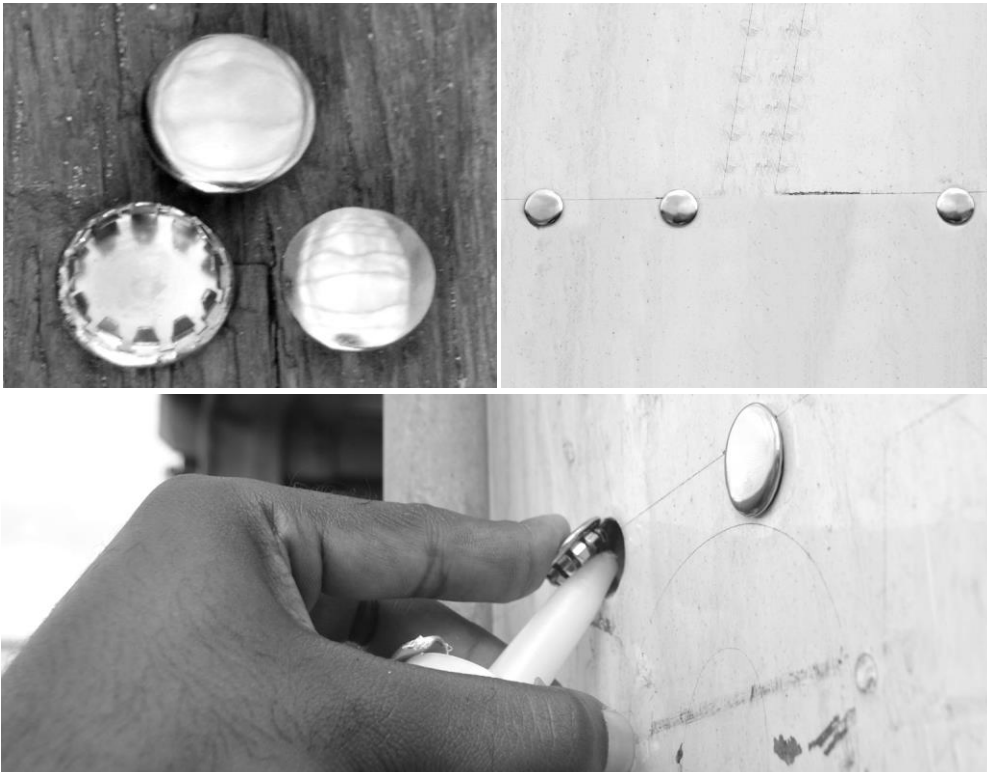
After the module has been removed from the door, there will be holes in the door. There are a number of techniques that can be used to repair the holes. This section will discuss some approaches you may wish to use.

Method 1: Hole Plugs

1. With the module removed, measure the size of the holes.



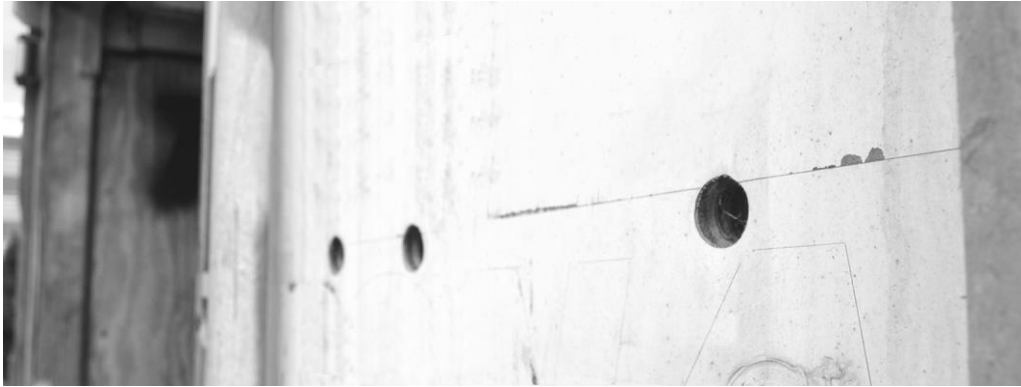
2. Source a set of plugs (nylon, rubber or metal), of the appropriate diameter, to fill the holes. These plugs can be sourced from hardware or auto supply stores. Insert the plugs into the holes. If desired, you may add 100% Silicone Exterior Grade caulk to the rear of the plug for extra protection to seal any gaps against water entry.



Method 2: Sealant

Note: This method works particularly well with thicker doors like dry van and roll-up doors.

1. With the module removed, you'll have three holes.



2. Fill the holes with a weatherproof sealant. If desired, you may use 100% Silicone Exterior Grade caulk or Polyurethane Sealant.

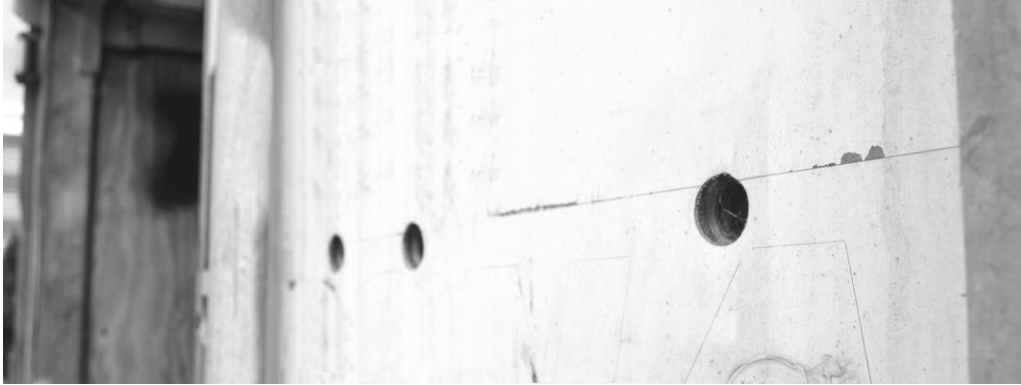


Tip: For an improved appearance, you may use a sealant that matches the door color.

Method 3: Fasteners

Note: This method works particularly well with thicker doors like dry van and roll-up doors.

1. With the module removed, you'll have three holes.



2. Source a set of elevator bolts, washers, and nuts to fill the holes. The outer surface diameter of the bolt should exceed the diameter of the hole to be covered. Insert the bolt into the hole. Place a washer between the nut and the interior door surface, and tighten the nut securely to the bolt.



5 Support

If you run into any problem during the installation process, contact the BlackBerry Radar support team at [1-844-RADAR-BB](tel:1-844-RADAR-BB).

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