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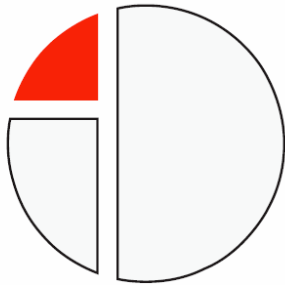
2. Artwork:

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**Vehicle Asset Communicator (VAC4)**

## PowerBox™

# Installation Guide



This device complies with Part 15 of the FCC Rules and Industry Canada License-Exempt RSS Standard(s).

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interferences received, including interference that may cause undesired operation.

L' utilisation de ce dispositif est autorisée seulement aux conditions suivantes :

- (1) il ne doit pas produire de brouillage et
- (2) l' utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

The transmitter must not be co-located or operated in conjunction with any other antenna or transmitter. This equipment complies with the FCC RF/IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and any part of your body.

Note: This equipment has been tested and found to comply with the limits for digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with FCC instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try correcting the interference by one or more of the following measures:

- 1.1. Reorient or relocate the receiving antenna.
- 1.2. Increase the separation between the equipment and receiver.
- 1.3. Connect the equipment into an outlet on a circuit different from that to which receiver is connected.
- 1.4. Consult the dealer or experienced radio/TV technician for help.

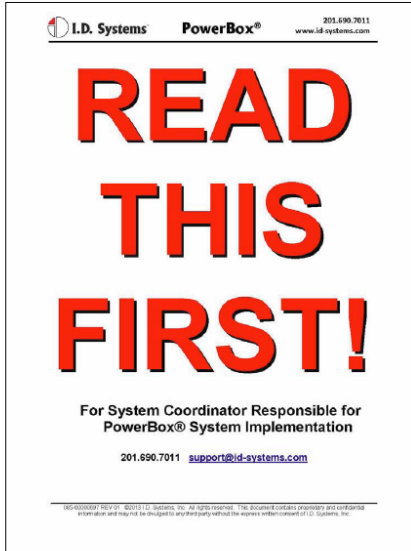
**WARNING**  
Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

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Guide 1<sup>st</sup> page (17" wide x 11" high) – Do not scale  
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Note: This publication is intended to provide the general knowledge needed to install the Vehicle Asset Communicator (VAC). Since vehicle designs vary widely throughout the industry, this guide focuses on providing comprehensive instruction for a "typical" installation method instead of tailored instructions by vehicle model.

- 1 System coordinator and installers should first refer to the PowerBox VAC4 Getting Started Guide for complete product overview.



- 2 Select an appropriate location to perform the vehicle installation. Ideally, a well-lit, open area where the vehicle can be test driven for about 5 seconds forward and then 5 seconds in reverse once the installation is complete.

- 3 Confirm that the vehicle kit is complete.

Component	Description	Qty
Vehicle Asset Communicator (VAC)	Black box with LCD screen and keypad	1
VAC mounting bracket	VAC Bracket	1
Vehicle hardware kit	VAC Bracket rear mounting plate, grommet, screws and nuts	1
VAC cable	6' to 18' fused cable (wired or OEM harness)	1
Relay kit	Small bag with two (2) relays and various fast-ons, etc.	1
Impact sensor	Square plastic device with integrated 12' cable	1
Electrical installation kit	Cable ties, ring terminals, etc.	1

- 4 Gather recommended installation tools.

Vehicle electrical diagram	17/64" (7 mm) drill bit
Multimeter and clip leads	11/32" (9 mm) drill bit
Allen wrench set	1-1/4" (32 mm) Holesaw
Metric socket set	Wire stripper/cutter
Metric combination wrench set	Utility knife
Phillips and flathead screwdriver set	Pliers
18 AWG wire	Electrical tape
Butt splices	Flashlight
Spare fuses (supplied in the <i>Open Me First</i> box)	
IDSY's Diode Splitters (supplied in the <i>Open Me First</i> box)	

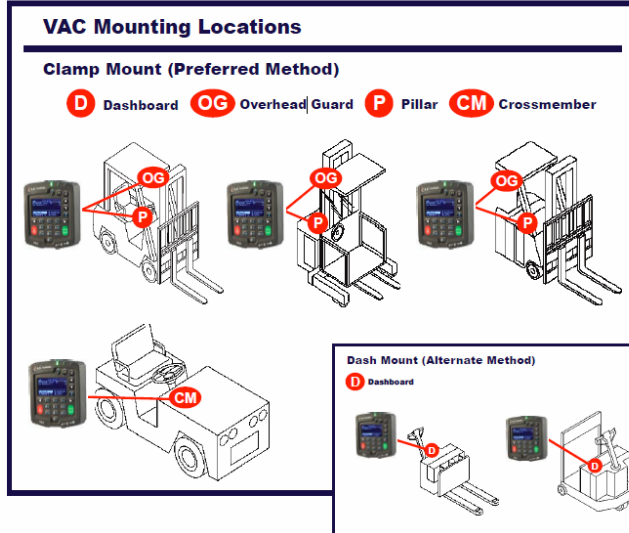
**NOTE:** In addition to the recommended installation tools listed above, tools to be used for dismantling the vehicle body and potentially removing the vehicle battery will be needed.

By following these installation guidelines, the aftermarket installation of the I.D. Systems VMS hardware does not void the vehicle manufacturer's warranty.

**5** Choose the VAC mounting location.

**VAC Mounting Location Considerations:**

- Whenever possible, mount the VAC bracket to an available beam, pillar, overhead guard, or cross-member using the "Clamp Mount" method.
- Vehicle operator must be able to view the VAC display and access the keypad while positioned for normal vehicle operation.
- Do not obscure the operator's line of sight or prohibit accessibility to the vehicle controls.
- Mount the VAC within physical range of vehicle connections and within 12 feet of the impact sensor.
- Limit the risk of cable damage by routing cables through the vehicle body. Whenever possible, use existing cable paths.
- Keep the VAC and VAC bracket inside the overall dimensions of the vehicle to avoid damage.
- Install the VAC and cable in a manner that will not interfere with routine vehicle operation.



**6** Loosen the bracket arm bolt so that the VAC adapter plate and bracket base plate can be adjusted.



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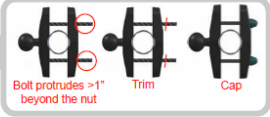
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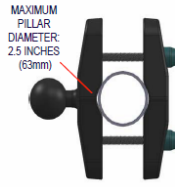
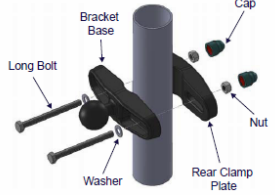
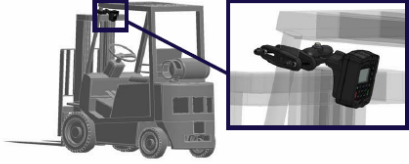
**7 Mount the VAC bracket based on the VAC mounting location determined in Step 5.**

**Clamp Mount (Preferred Method)**

Note: Clamp mount bolts must not protrude more than 1" beyond the nut. Bolts that extend beyond 1" should be trimmed down (no shorter than 1/2", no longer than 3/4") and capped.

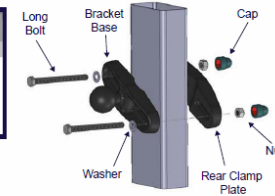
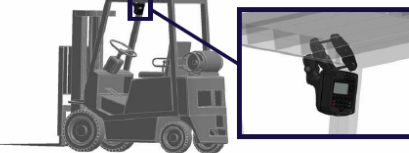


**7a Round Pillar**



**7b Rectangular Pillar/Overhead Guard Plate**

The rear clamp's recessed pockets hold nuts in place while screws are installed.

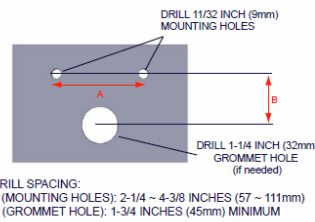
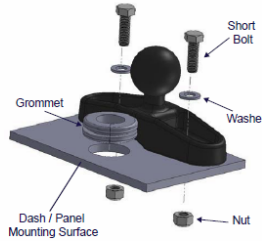


NOTE: Mounting on a rectangular pillar at an angle (as shown) will minimize risk of external protrusion.

PILLAR DIMENSIONS (WITH PROVIDED HARDWARE)  
 A: 3/16 INCHES (5-1/2mm) to 2-3/8 INCHES (60mm)  
 B: 4 INCHES (102mm) MAXIMUM



**7c Dash Mount (Alternate Method)**



**VAC Bracket Parts and Mounting Hardware**

VAC BRACKET BASE

Bracket Base

VAC BRACKET REAR CLAMP PLATE

Rear Clamp Plate

M8 FLAT WASHER

Washer

M8 - 1.25 NYLON LOCK NUT

Nut

M8 - 1.25 x 90mm HEX HEAD SCREW

Long Bolt

M8 - 1.25 x 25mm HEX HEAD SCREW

Short Bolt

M8 RUBBER BOLT CAP

Cap

GROMMET

Grommet

**8 Mount the VAC to the VAC bracket.**

**8a** Slide the VAC onto the bracket and secure using the M5 nuts supplied with the VAC.



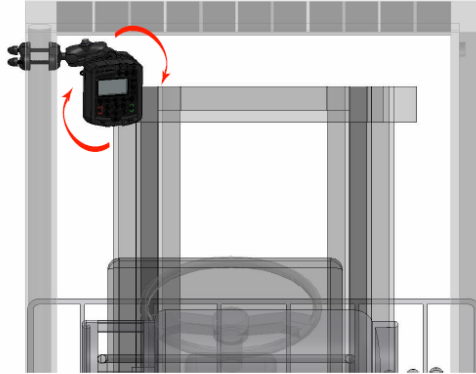
**8b** If needed, adjust the orientation of the bracket.

The vehicle operator should be able to easily access the VAC.

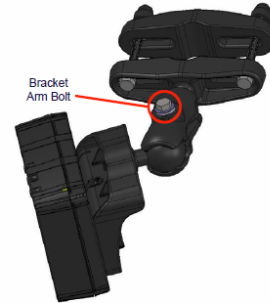
The position of the VAC and bracket must not obscure the operator's line of sight.

The VAC and bracket must remain within the overall dimensions of the vehicle.

Install the VAC and cable in a manner that will not interfere with routine vehicle operation.

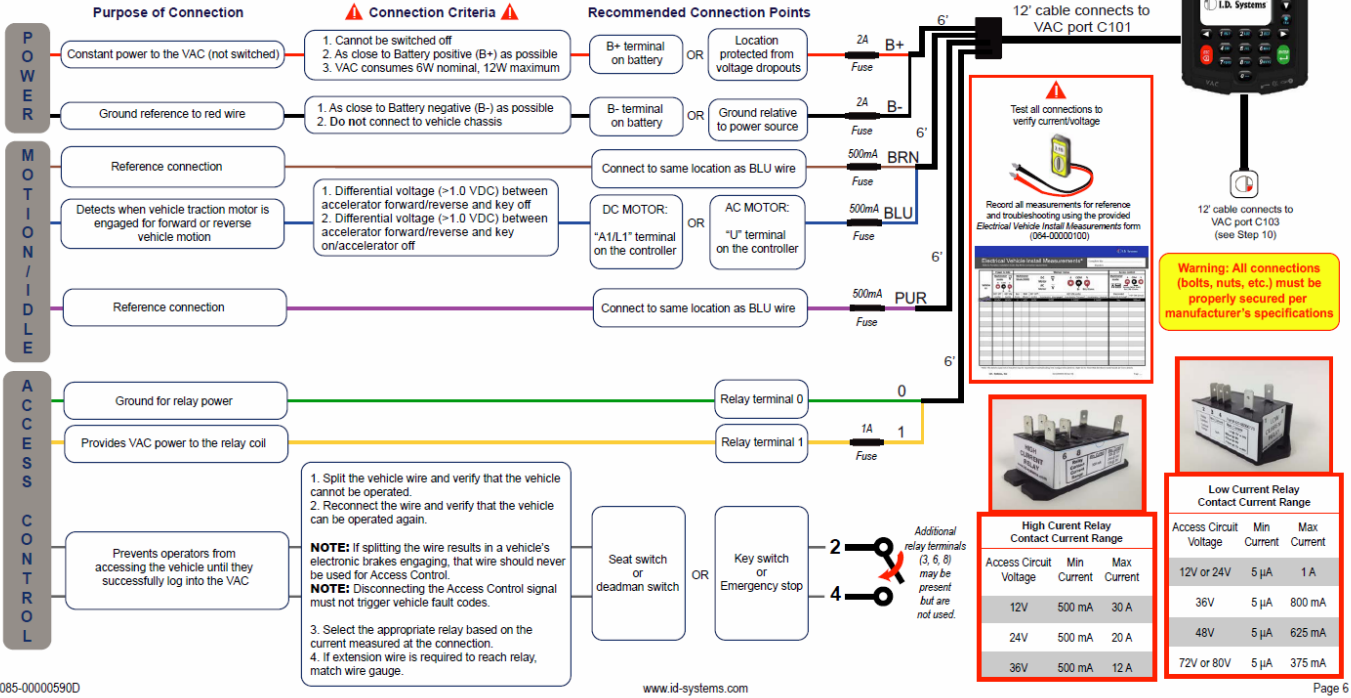


**8c** Tighten the bracket arm bolt.



**9A** Using the chart below, locate and test the desired vehicle interface points.

- Verify the VAC cable will reach the connection points based on the VAC mounting location.
- Connections and fuses should be in an area that can be easily accessed for maintenance and troubleshooting.
- If possible, attempt to locate all connection points near each other to simplify installation. It is common to locate most connections by/at the vehicle controller.

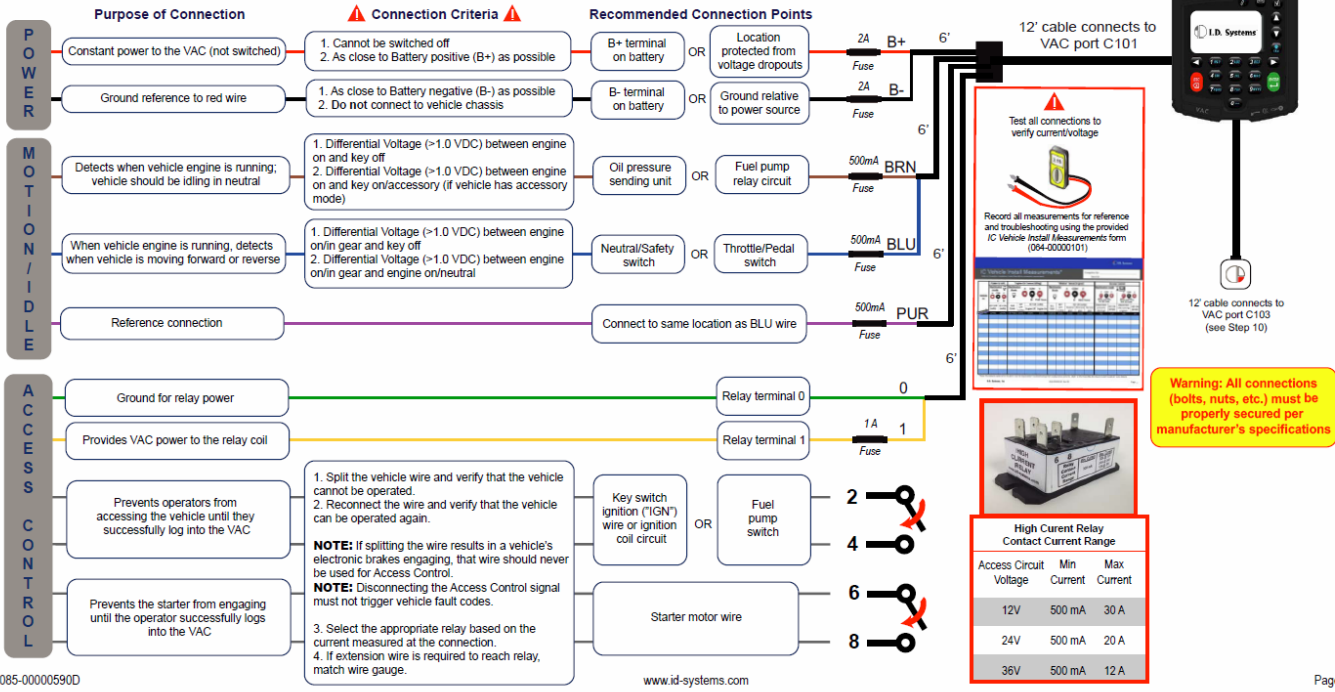


Guide 6<sup>h</sup> page (17" wide x 11" high) – Do not scale  
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**9B** Using the chart below, locate and test the desired vehicle interface points.

- Verify the VAC cable will reach the connection points based on the VAC mounting location.
- Connections and fuses should be in an area that can be easily accessed for maintenance and troubleshooting.
- If possible, attempt to locate all connection points near each other to simplify installation.

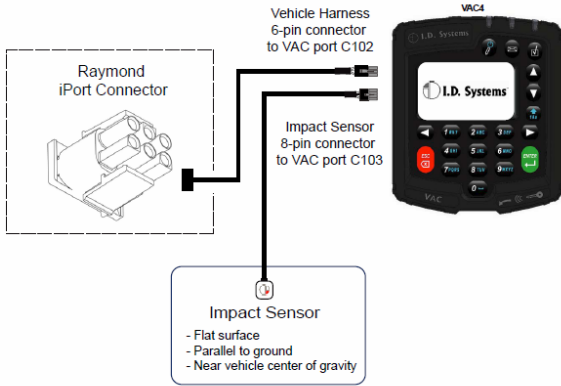


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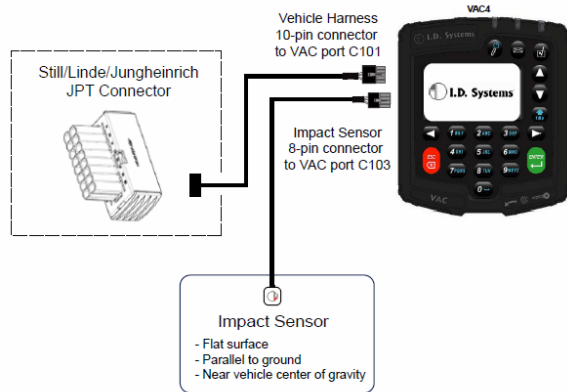


**9C** Locate and test the desired vehicle interface points.  
- Verify the VAC cable will reach the connection points based on the VAC mounting location.

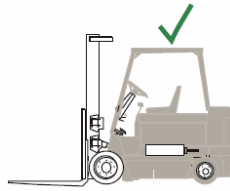
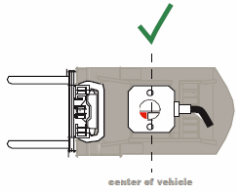
### Raymond iPort



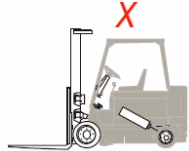
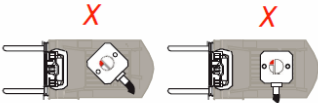
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- 10 Mount the impact sensor on a stable section of the vehicle's frame.**  
**Verify the impact sensor cable will reach the mounted VAC location.**  
**Select a location that is not prone to vibration or routine shock and is as close to the center of the vehicle as possible (see below).**



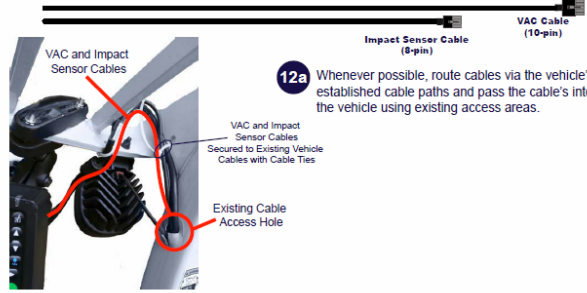
- Impact sensor should be mounted near the vehicle's center of gravity, as shown above.
- Impact sensor should be mounted parallel with the ground.
- Impact sensor cable should protrude toward the back or front of the vehicle, not to the sides or at an angle.
- Impact sensor should be secured to the vehicle frame.



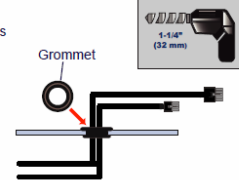
-  Clean the vehicle surface prior to adhering the impact sensor's double-sided tape.  
 The supplied tape cannot be reused. If the sensor must be moved, new tape must be used.  
 Do not mount the impact sensor with screws.  
 Do not leave excess cables resting on top of the impact sensor as this may produce false impacts.

- 11 Determine cable routing path.**
- Avoid installing or coiling the cable adjacent to the high-current cables or high-noise sources (e.g. motors)
  - Avoid routing through pinch points that may damage the cable jacket.
  - Check that the vehicle connector, mid-cable junction and fuse holders all fit through any 'holes' the cable has to route through. Routing from the 'middle' outward is often the most efficient method.
  - Avoid routing through areas containing, or often in contact with, chemicals and/or corrosive material.
  - Avoid areas where the cable may become submerged in water.

- 12 Route VAC and Impact Sensor cables.**  
 Ensure connectors and pins are not damaged or coated with dirt while routing the cables



- 12b** If existing cable channels are not available:
- i.) Select a safe, unobstructed location where the cables can enter the vehicle and route to their respective connection points.
  - ii.) Use a 1-1/4" (32 mm) bit to drill a cable access hole at the location identified in the previous step.
  - iii.) Route the VAC and Impact Sensor cables through the cable access hole.
  - iv.) Fit the grommet snugly into the cable access hole.

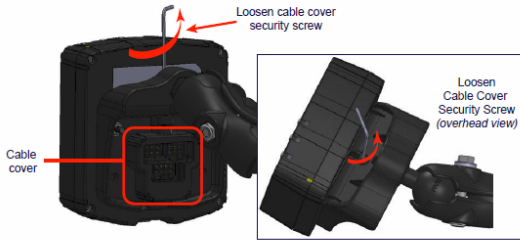




**13 Remove the cable cover.**

**13a** Using 2.5 mm Hex Key (Allen key), loosen the security screw at the top of the cable cover until the top of the cable cover can be removed.

**Do not completely remove the security screw.**



**13b** Press in the latch at the bottom of the cable cover and remove the cable cover.



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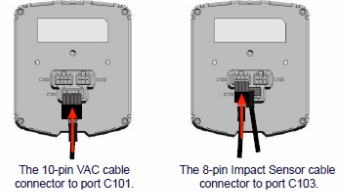
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**14 Slide the VAC and Impact Sensor cables through the cable cover.**



**15 Connect the VAC and Impact Sensor cable connectors to their respective ports.**

**Verify that the connector latches are engaged to ensure that the cables are secured to the VAC.**



**16 Snap in the cable cover and tighten the security screw with a 2.5 mm Hex key (Allen key).**

**Do not overtighten the security screw.**



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Guide 10<sup>th</sup> page (17" wide x 11" high) – Do not scale  
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**17 Mount the external relay required for vehicle Access Control.**

**External Relay Mounting Considerations**

Mount the relay to a solid surface of the truck.


The mounting location should be dry, away from extreme heat, and as close as possible to the circuit that is being interrupted to avoid excess wire routing.

To avoid short-circuits, make sure no relay contacts remain exposed. Protection caps must remain installed on unused pins.

Never mount the relay near extreme magnetic or high current areas.

The relay is mounted to the vehicle using the supplied hardware, typically via screw mount. If tape-mounting is desired, use a wide-temperature-range VHB tape, and the vehicle surface must be cleaned.

**⚠ It is critical that the appropriate relay is chosen for the connections based on current measurement. ⚠**



High Current Relay Contact Current Range			Low Current Relay Contact Current Range		
Access Circuit Voltage	Min Current	Max Current	Access Circuit Voltage	Min Current	Max Current
12V	500 mA	30 A	12V or 24V	5 µA	1 A
24V	500 mA	20 A	36V	5 µA	800 mA
36V	500 mA	12 A	48V	5 µA	625 mA
			72V or 80V	5 µA	375 mA

**NOTE: If neither of the two relays provided meets the current/voltage requirements of the installation, contact I.D. Systems Technical Support at 201-690-7011.**

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Guide 11<sup>th</sup> page (17" wide x 11" high) – Do not scale  
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**18 Wire the cable to the connection points determined in Step 9.**



**19 Reassemble the vehicle so it can accommodate a test drive.**

**20 Log into the VAC as a Maintenance operator and select "Install" to run the configuration wizard.**

iButton VAC - Use the yellow Maintenance operator iButton

Contactless reader VAC - Enter the Maintenance operator ID and password using the VAC keypad

Maintenance ID: 7262468  
Maintenance password: 2378  
Master ID: 7278737  
Master password: 5915



**If needed, refer to the PowerFleet Hardware User's Guide for details on running the configuration wizard and routine troubleshooting.**

**21 Verify the configuration wizard completes successfully. If configuration fails, address any issues identified by the VAC and re-run the configuration wizard.**

**22 Secure all cables, wires, etc. and then completely reassemble the vehicle.**