POWERFLEET

VAC4

Wired Method Installation Guide

Proprietary and Confidential
Version 085-00000132 rev E
Revised and Updated: October 2, 2023

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 interface, 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 étre 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 devices, 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.

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.

By following these installation guidelines, the aftermarket installation of the Powerfleet hardware does not void the vehicle manufacturer's warranty.

Table of Contents

1. Powerfleet VAC4 Getting Started Guide

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

2. Select a location.

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
Forklift Gateway (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	Access control relay and various install parts	1
Impact sensor	Square plastic device with integrated 12' cable	1
Electrical installation kit	Cable ties, ring terminals, etc.	1

*Optional sensors and sensor-supporting materials (e.g., cables) are provided separately, not part of the vehicle kit.

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) Hole saw
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 *Open Me First* 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.

5. Choose the VAC mounting location.

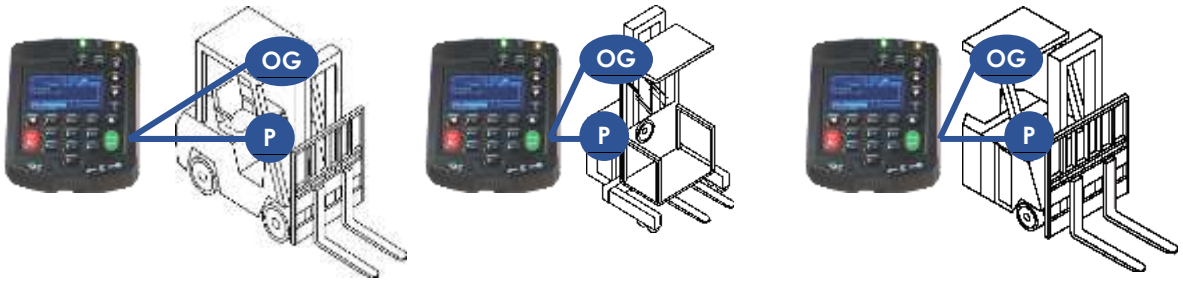
VAC Mounting Location Considerations

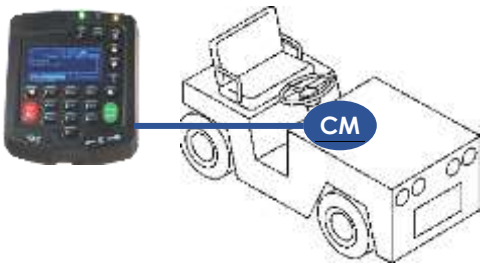
- Whenever possible, mount the VAC bracket to an available beam, pillar, overhead guard, or crossmember using the "Clamp Mount" method.
- Vehicle operators must be able to view the VAC display and access the keypad while positioned for normal vehicle operation.
- Do not obscure the operator's line of 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.

VAC Mounting Locations

Clamp Mount (Preferred Method)

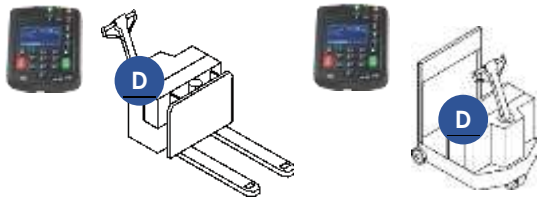
D Dashboard OG Overheard Guard P Pillar CM Crossmember





Dash Mount (Alternate Method)

D Dashboard

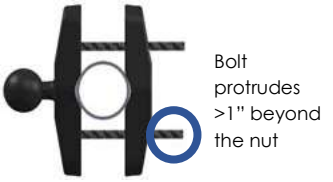


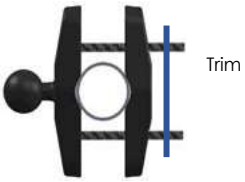
6. Loosen the bracket arm bolt so that the VAC adapter plate and bracket base plate can be adjusted.

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

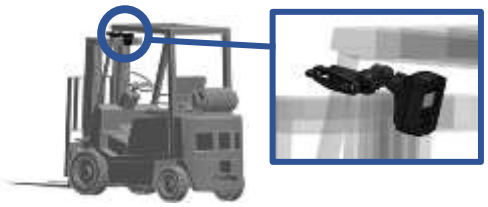
Clamp Mount (Preferred Method)

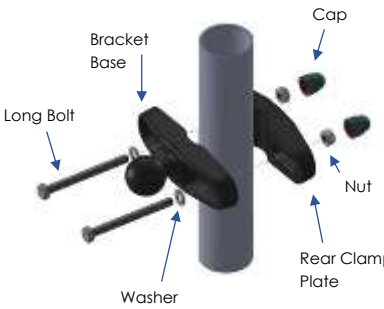
Note: Clamp mount bolts must not protrude more than 1" beyond the nut. Bolts that extend beyond 1" should be trimmed down (no shorter than 1/2", no longer than 3/4") and capped.

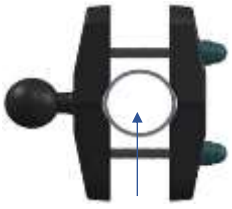




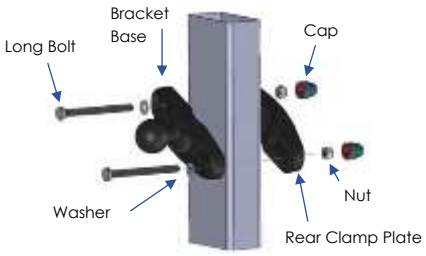
7a. Round Pillar

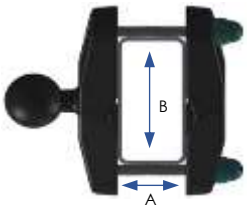






7b. Rectangular Pillar/Overhead Guard Plate
The rear clamp's recessed pockets hold nuts in place while screws are installed.

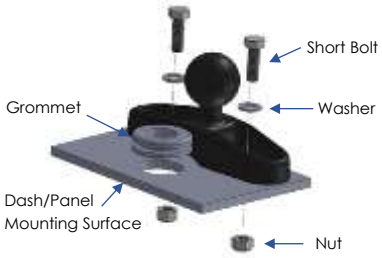


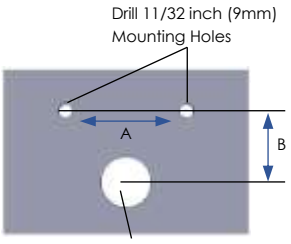


Note: Mounting on a rectangular pillar at an angle (as shown) will minimize risk of external protrusion.

Pillar Dimensions (With Provided Hardware)
A: 3/16 inches (5 ½ mm) to 2-3/8 inches (60mm)
B: 4 inches (102mm) MAXIMUM

7c. Dash Mount (Alternate Method)





Drill Spacing
A (Mounting Holes): 2-1/4 ~ 4-3/8 inches (57-111mm)
B (Grommet Holes): 1-3/4 inches (45mm) MINIMUM

VAC Bracket Parts and Mounting Hardware

VAC Bracket Base

M8 – 1.25 x 90mm HEX Head Screw

M8 – 1.25 x 25mm HEX Head Screw

M8 Rubber Bolt Cap

VAC Bracket Rear Clamp Plate

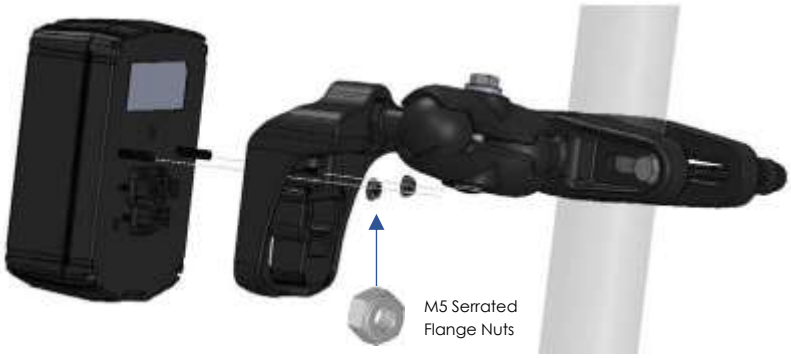
M8 Flat Washer

M8 – 1.25 Nylon Lock Nut

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.



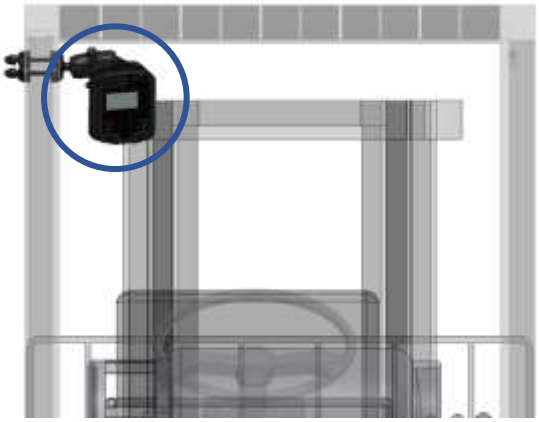
8b. If needed, adjust the orientation of the bracket.

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.

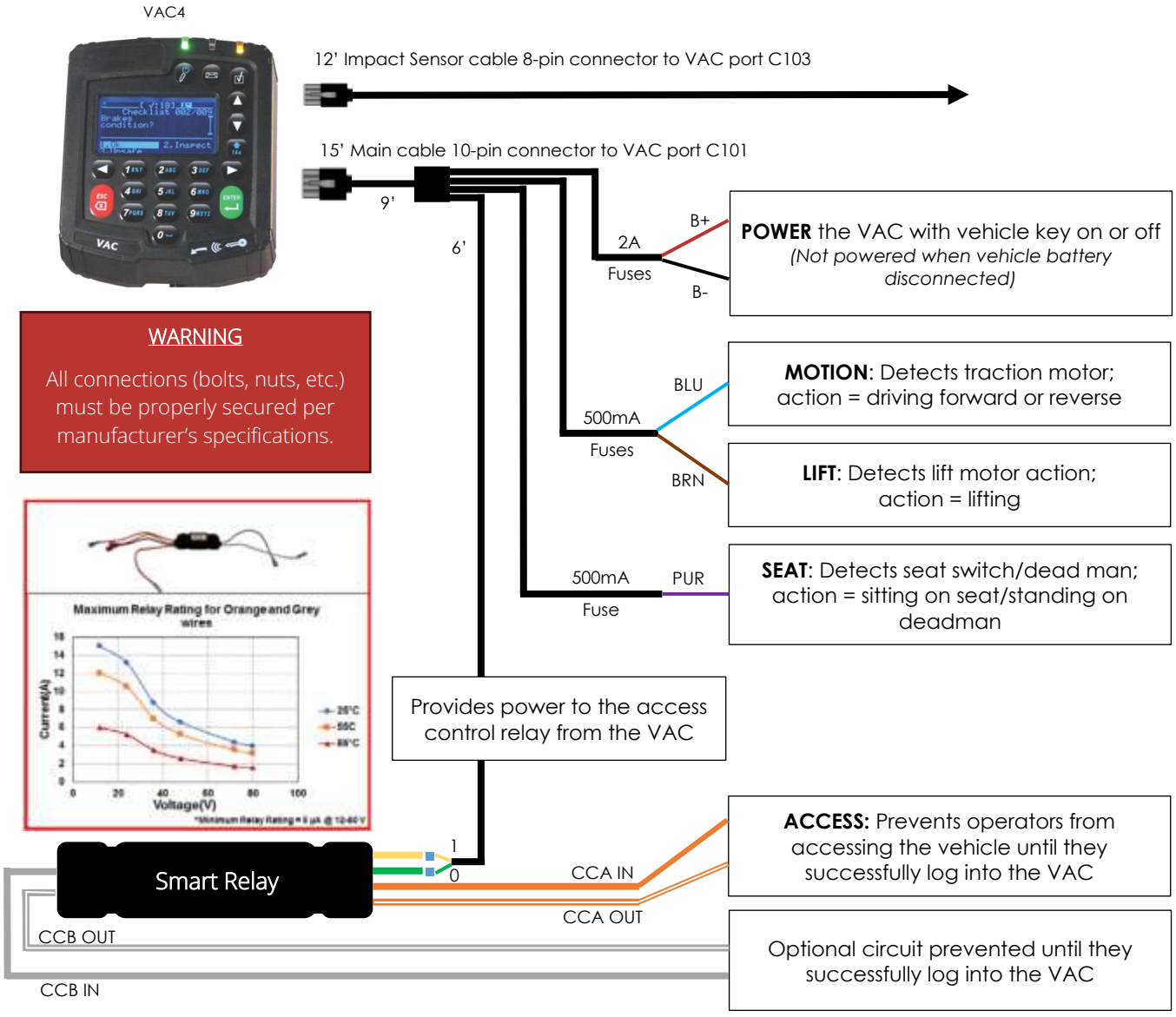


8c. Tighten the bracket arm bolt.

9. Vehicles with Wired Method – Main Connections

9a. Use the chart below to connect vehicles with **ELECTRIC MOTOR** vehicle connections only.
See next page for connection recommendations and criteria!

- Verify the VAC cable will reach the connection points based on the mounted VAC 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.

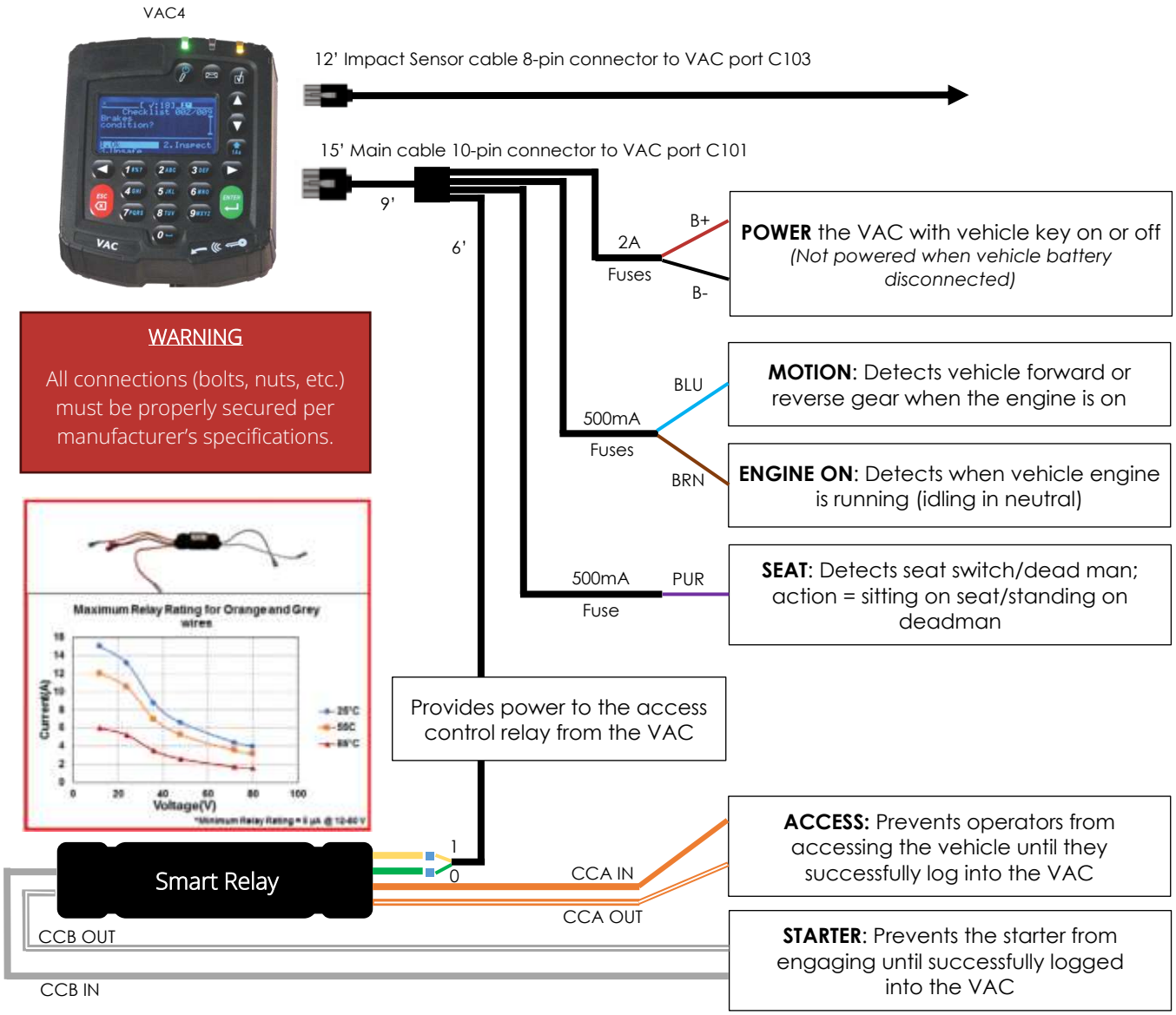


Electric Motor Vehicle Main Harness Wiring Requirements

Wire	Purpose of Connection	Connection Criteria	Recommended Connection Point
B+ *(red)*	Power to VAC	• 100 volts max. input; uses 6W nom., 12W max. • As close to battery positive as possible • Not near Silicon Controller Rectifiers	B+ (not on battery); protected from voltage dropouts
B- *(black)*	Ground to B+	• As close to battery negative as possible • Do not connect to vehicle chassis	B- (not on battery); ground relative to B+
BLU *(blue)*	Motion sense	• Differential voltage of >1.0 volt between signal active (e.g., in motion) and key off. • Differential voltage of >1.0 volt between signal active (e.g., in motion) and key on / inactive (e.g., no moving) • Maximum voltage input of 100 volts  *If vehicle requires 2 connections for activity sensing (i.e., forward & reverse gears), attach a Powerfleet diode splitter to the end of the wire.*	• Forward/Reverse Control Throttle • A2 (DC) or V (AC) terminal on traction Motor controller • Vehicle speed sensor (AC) • Vehicle speed on encoder (AC)
BRN *(brown)*	Lift motor sense		• Lift Control Throttle or Button • A2 (DC) or V (AC) terminal on lift motor controller
PUR *(purple)*	Operator presence sense		Seat or deadman switch
0 *(green)*	Access relay activation		Relay terminal 0
1 *(yellow)*	Access relay activation		Relay terminal 1
CCA IN *(orange)*	Vehicle access control	• Split a vehicle wire and verify that the vehicle cannot be operated. • Reconnect the wire and verify that the vehicle can be operated again. • If the extension wire is required to reach relay, match wire gauge.	• Seat or deadman switch • Key switch • Emergency stop
CCA OUT *(orange /white)*	Vehicle access control	***NOTE**: If disconnecting the wires results in a vehicle's electronic brakes engaging or vehicle fault codes, that wire should never be used.*	
CCB IN *(grey)*	Not used		
CCB OUT *(grey/ white)*	Not used		

9b. Use the chart below to connect vehicles with **INTERNAL COMBUSTION** vehicle connections only.

- Verify the VAC cable will reach the connection points based on the mounted VAC 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.

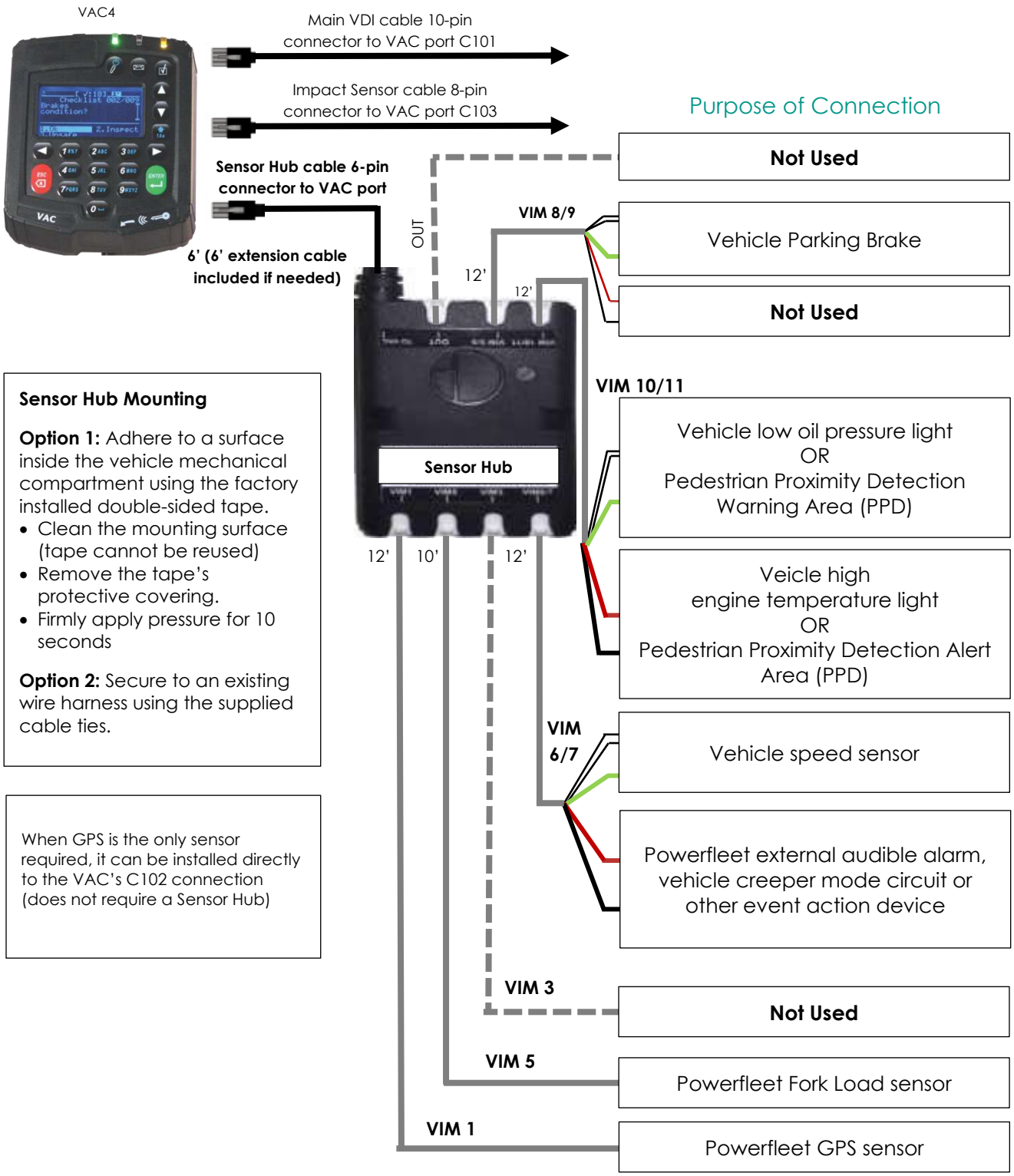


Internal Combustion Vehicle Main Harness Wiring Requirements

Wire	Purpose of Connection	Connection Criteria	Recommended Connection Point
B+ *(red)*	Power to VAC	• 100 volts max. input; uses 6W nom., 12W max. • As close to battery positive as possible • Not near Silicon Controller Rectifiers	B+ (not on battery); protected from voltage dropouts
B- *(black)*	Ground to B+	• As close to battery negative as possible • Do not connect to vehicle chassis	B- (not on battery); ground relative to B+
BLU *(blue)*	Forward and reverse gears	• Differential voltage of >1.0 volt between signal active (e.g., in motion) and key off • Differential voltage of >1.0 volt between signal active (e.g., in motion) and key on / inactive (e.g., no moving) • Maximum voltage input of 100 volts  *If vehicle requires 2 connections for activity sensing (i.e., forward & reverse gears), attach a Powerfleet diode splitter to the end of the wire.*	• Neutral/safety switch • Throttle/pedal switch
BRN *(brown)*	Vehicle engine on		• Oil pressure sending unit • Fuel pump relay circuit
PUR *(purple)*	Operator presence sense		Seat or deadman switch
0 *(green)*	Access relay activation		Relay terminal 0
1 *(yellow)*	Access relay activation		Relay terminal 1
CCA IN *(orange)*	Vehicle access control	• Split a vehicle wire and verify that the vehicle cannot be operated. • Reconnect the wire and verify that the vehicle can be operated again. • If the extension wire is required to reach relay, match wire gauge. ***NOTE**: If disconnecting the wires results in a vehicle's electronic brakes engaging or vehicle fault codes, that wire should never be used.*	• Key switch ignition (IGN) wire • Ignition coil circuit • Fuel pump switch
CCA OUT *(orange /white)*	Vehicle access control		
CCB IN *(grey)*	Vehicle starter inhibitor	• Split a vehicle wire and verify that the vehicle cannot be operated. • Reconnect the wire and verify that the vehicle can be operated again. • If the extension wire is required to reach relay, match wire gauge. ***NOTE**: If disconnecting the wires results in a vehicle's electronic brakes engaging or vehicle fault codes, that wire should never be used.*	Starter motor wire
CCB OUT *(grey/ white)*	Vehicle starter inhibitor		Starter motor wire

10. Optional Sensors and Sensor Hub Connections.

If needed, make connections to the Sensor Hub port(s) and their corresponding sensor(s), as shown below. ***See next page for connection recommendations!***



Sensor Hub Mounting

Option 1: Adhere to a surface inside the vehicle mechanical compartment using the factory installed double-sided tape.

- Clean the mounting surface (tape cannot be reused)
- Remove the tape's protective covering.
- Firmly apply pressure for 10 seconds

Option 2: Secure to an existing wire harness using the supplied cable ties.

When GPS is the only sensor required, it can be installed directly to the VAC's C102 connection (does not require a Sensor Hub)

Wiring Requirements

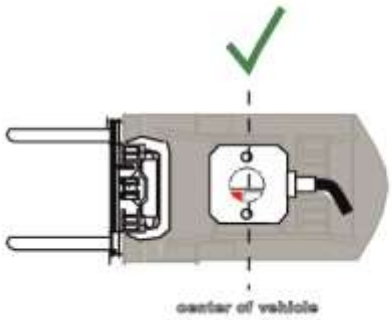
VIM	Purpose of Connection	Connection Criteria	Wires	Recommended Connection Point
VIM 1	Vehicle location and speed data	Refer to sensor kit installation instructions	N/A	Powerfleet GPS sensor
VIM 5	Vehicle load status (loaded vs. empty)	5000 PSI maximum hydraulic line for 'lift' operation (not side-to-side or in-out); refer to sensor kit	N/A	Powerfleet Fork Load sensor
VIM 6/7	Monitors vehicle speed	AC (sinusoidal) or Digital (Pulses); Maximum voltage differential 5.0V. Zero pulses at no speed, linear pulse increases with speed	White	Positive (+) side of vehicle speed sensor
			Green	Negative (-) side of vehicle speed sensor
	Activates vehicle action when configured events occur	12 VDC control device (e.g., supplied relay, sounder); 12 VDC always present, GND floats or is pulled to ground; refer to sensor kit installation instructions	Red	Red wire of Sounder OR Coil side ("1") of control relay OR Positive (+) side of Creeper connection
			Black	Black wire of Sounder OR Coil side ("0") of control relay OR Negative (-) side of Creeper connection
VIM 8/9	Monitors when parking brake is applied and released	• Differential voltage of >1.0 VDC between signal active (e.g., brake on) and key off • Differential voltage of >1.0 VDC between signal active (e.g., brake active) and signal inactive (e.g., brake released) • Maximum voltage input of 100 volts	White	Positive (+) side of parking brake switch
			Green	Negative (-) side of parking brake switch
	Not Used		Red	N/A
	Not Used		Black	N/A

VIM	Purpose of Connection	Connection Criteria	Wires	Recommended Connection Point
VIM 10/11	High engine temperature light OR Pedestrian Proximity Detection (PPD) Warning Area	• Differential voltage of >1.0 VDC between signal active (e.g., brake on) and key off • Differential voltage of >1.0 VDC between signal active (e.g., brake active) and signal inactive (e.g., brake released) • Maximum voltage input of 100 volts	White	Positive (+) side of high engine temp light OR PPD Warn Area
			Green	Negative (-) side of high engine temp light OR PPD Warn Area
	Low oil pressure light OR Pedestrian Proximity Detection (PPD) Alert Area	• Differential voltage of >1.0 VDC between signal active (e.g., brake on) and key off • Differential voltage of >1.0 VDC between signal active (e.g., brake active) and signal inactive (e.g., brake released) • Maximum voltage input of 100 volts	Red	Positive (+) side of low oil pressure light OR PPD Alert Area
			Black	Negative (-) side of low oil pressure light OR PPD Alert Area

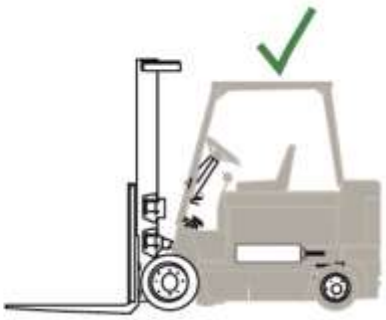
11. Mount the impact sensor on a stable section of the vehicle's frame.

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).

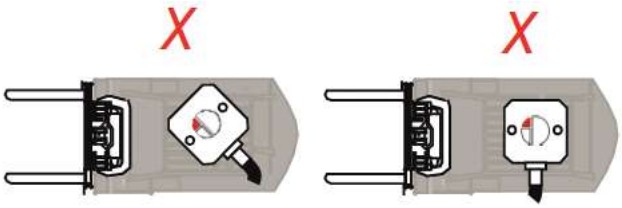


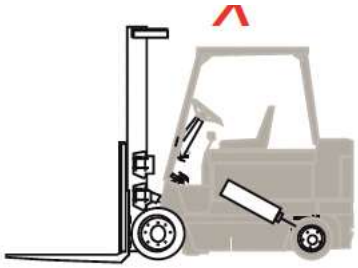
Center of vehicle



- Impact sensor should be mounted near the vehicle's center of gravity, as shown above.
- 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 mounted parallel with the ground.
- 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.

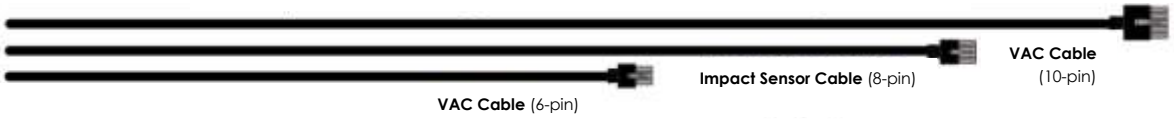
Do not leave excess cables resting on top of the impact sensor as this may produce false impacts.

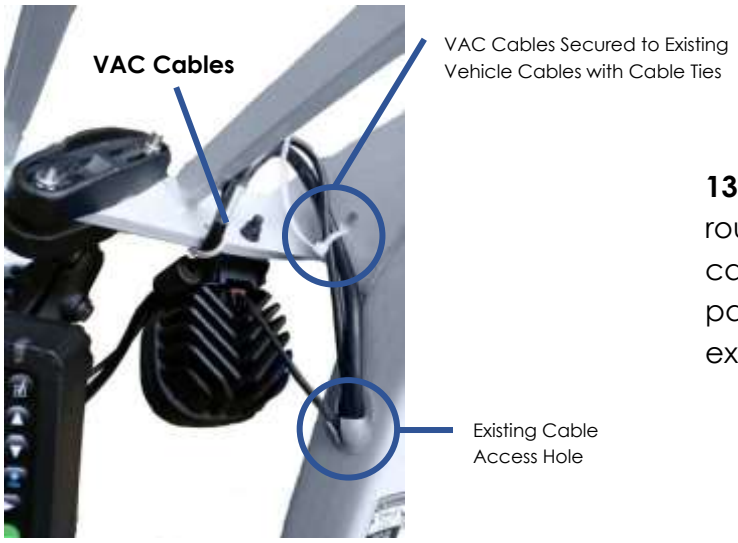
12. Determine cable routing path.

- Avoid installing or coiling the cables 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 connectors will fit through any 'holes' the cable must 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 cables may become submerged in water.

13. Route the cables that plug into the VAC.

Ensure connectors and pins are not damaged or coated with dirt while routing the cables.

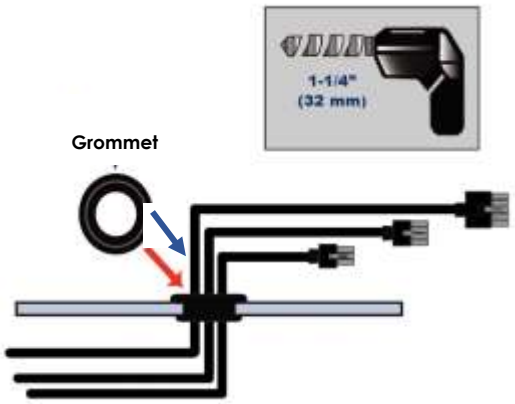




13a. Whenever possible, route cables via the vehicle's established cable paths and pass the cables into the vehicle using existing access areas.

13b. If existing cable channels are not available:

- Select a safe, unobstructed location where the cables can enter the vehicle and route to their respective connection points.
- Use a 1-1/4" (32 mm) bit to drill a cable access hold at the location identified in previous step.
- Route the VAC and Impact Sensor cables through the cable access hole.
- Fit the grommet snugly into the cable access hole.



14. Remove the cable cover.

14a. 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.

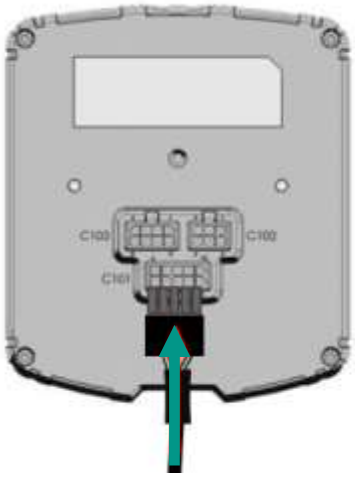
⚠ **Do not completely remove the security screw.**

14b. Press in the latch at the bottom of the cable cover and remove the cable cover.

15. Slide the VAC and Impact Sensor cables through the cable cover.

16. 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.**



The 10-pin VAC cable connector to port C101.

The 8-pin Impact Sensor cable connector to port C103.

The 6-pin optional Sensor Hub cable connector to port C102

17. Leave at least 2" to 4" of cable slack (looped) to allow for strain relief from later bracket adjustments

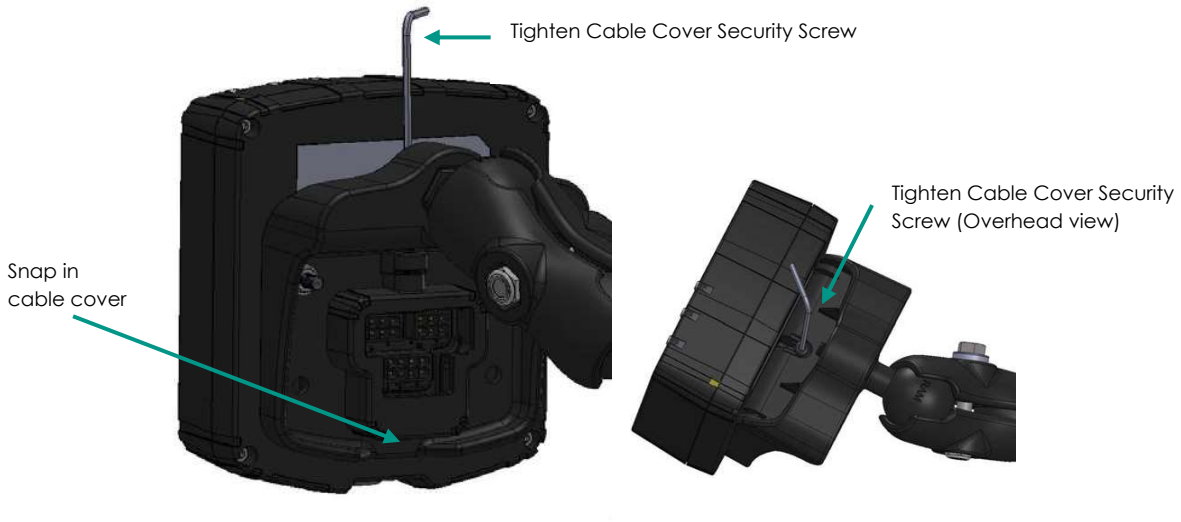
Position the bracket to ensure cables are not stressed against ball joints.

2-4" cable slack

Ball joint to the side to allow for strain-free cable routing.

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

⚠ **Do not overtighten the security screw.**



19. Secure the cables using industrial cable ties from the connection points to the cable slack near the bracket identified in Step 17.

20. Mount the external relay required for vehicle Access Control

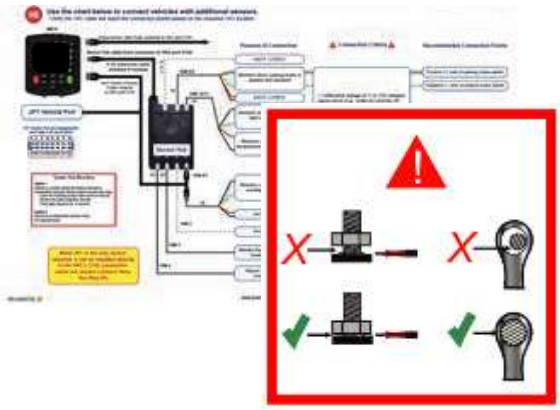
- Mount using the supplied tape or cables ties.
- Must be as close to the circuit as possible, while maintaining easy physical for vehicle servicing.
- Unused terminals must be mated together (matching colors)
- Never mount the relay near extreme magnetic or high current areas
- When using tape, mounting location must be solid, flat, clean, dry, and away from a heat source.
- When using cable ties, the mounting location must be a flat sturdy surface.

LED indicators show the current supply passing an energized relay.

GREEN = current is less than 1A
RED = current is more than 1A

21. Make sure the cables are connected properly per Step 9.

Coil excess cable with a minimum diameter loop of 8”



22. Once all hardware is installed and all connections are made (including optional sensor), reassemble the vehicle to accommodate a test drive.

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

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.

24. Verify the Basic configuration wizard completes successfully.

If configuration fails, address any issues identified by the VAC and re-run the configuration wizard.

25. If optional sensors were installed, select "Sensors" to proceed.

If no optional sensors were installed,
select "Done" to exit the Configuration Wizard.

26. Each sensor function must be assigned to the connection associated with the physical installation.

The VAC uses default assignments by vehicle type; however, these can be changed using the "Edit" menu options.

Assignment Code (edit mode)	**Assignment Display** (read mode)	**Vehicle Connection**	**VAC Connection**	**Typically Used For**
000	Disabled	-	-	-
001	BLU	BLU wire	VAC C101	Motion
002	PUR	PUR wire	VAC C101	Seat switch or Deadman
003	BRN	BRN wire	VAC C101	Lift or Engine on
004	RED	B+ wire	VAC C101	Battery voltage
007	007	Sensor	VAC C102	GPS location*
101	101	Sensor	HUB VIM 1	GPS location*
103	103	-	HUB VIM 3	-
105	105	Sensor	HUB VIM 5	Fork load
106	106	White/Green (Pair 1)	HUB VIM 6/7	Vehicle speed*
107	107	Red/Black (Pair 2)	HUB VIM 6/7	Output Alert, Normally Closed relay
108	108	White/Green (Pair 1)	HUB VIM 8/9	Parking brake
109	109	Red/Black (Pair 2)	HUB VIM 8/9	-
110	110	White/Green (Pair 1)	HUB VIM 10/11	Engine Temperature or PPD Warning
111	111	Red/Black (Pair 2)	HUB VIM 10/11	Oil Pressure or PPD Alert

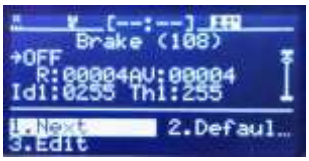
** To use the GPS receiver for vehicle speed sensing, use assignment code 253 for "Speed."*

27. Verify the configuration of each sensor that is installed.

Lift Motor Time (Lift 1)

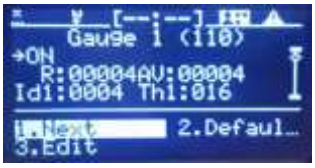
1. Verify the lift assignment is correct in the screen header (e.g., BRN for brown wire)
2. Make sure the lift motor if off
3. Verify the screen indicates "→ **No Lift**"
4. Engage the lift motor
5. Verify the screen indicates "→ **Lift**" while the lift motor is running
6. If the screen does not change to "Lift":
   a. Note the "AV" values while liftng and not lifting and when key is off
   b. Change the Id1/Th1 and Id2/Th2 values using the "Edit" menu so that:
      - AV when key is off is between Id1+/- Th1 **or** Id2 +/- Th2 ranges
      - AV when not lifting is between Id1+/- Th1 **or** Id2 +/- Th2 ranges
      - AV when lifting is outside of the Id1+/- Th1 **and** Id2 +/- Th2 ranges
      - Return to step 2 to retest

Parking Brake Sensor (Brake)

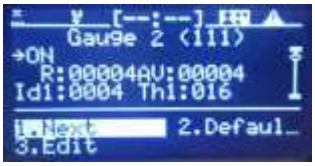


1. Verify the brake assignment is correct in the screen header (e.g., 108 for HUB VIM8/9)
2. Disengage (release) the parking brake
3. Verify the screen indicates "→ **OFF**"
4. Engage (apply) the parking brake
5. Verify the screen indicates "→ **ON**" while the brake is engaged
6. If the screen does not change to "ON":
   a. Note the "AV" values while the brake is engaged, disengaged and when key is off
   b. Change the Id1/Th1 and Id2/Th2 values using the "Edit" menu so that:
      - AV when key is off is between Id1+/- Th1 **or** Id2 +/- Th2 ranges
      - AV when not lifting is between Id1+/- Th1 **or** Id2 +/- Th2 ranges
      - AV when lifting is outside of the Id1+/- Th1 **and** Id2 +/- Th2 ranges
      - Return to step 2 to retest

Gauge State (Gauge 1 and Gauge 2)



1. Verify the Gauge 1 assignments is correct in the screen header (e.g., 110 for HUB VIM 10/11)
2. Verify the gauge is disabled (e.g., oil pressure light off)
3. Verify the screen indicates "→ **OFF**"
4. Enable the gauge (e.g., turn key to accessory position)
5. Verify the "AV" value changes to a value outside of the Id1+/- **and** Id2+/-Th2 ranges
   a. The screen will not change to "→ **ON**" unless the gauge stays active with the engine running for more than 10 seconds
6. If the "AV" value is not outside the Id1+/-Th1 **and** Id2+/-Th2 ranges
   a. Change the Id1/Th1 and Id2/Th2 values using the "Edit" menu so that:
      - AV when the gauge is disabled is between Id1+/-Th1 or Id2+/-Th2 ranges
      - AV when the gauge is disabled is outside Id1+/-Th1 **and** Id2+/-Th2 ranges
      - Return to step 2 to retest



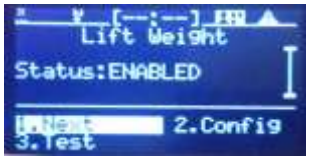
1. Verify the Gauge 2 assignments is correct in the screen header (e.g., 111 for HUB VIM 10/11)
2. Verify the gauge is disabled (e.g., oil pressure light off)
3. Verify the screen indicates "→ **OFF**"
4. Enable the gauge (e.g., turn key to accessory position)
5. Verify the "AV" value changes to a value outside of the Id1+/- **and** Id2+/-Th2 ranges
   a. The screen will not change to "→ **ON**" unless the gauge stays active with the engine running for more than 10 seconds
6. If the "AV" value is not outside the Id1+/-Th1 **and** Id2+/-Th2 ranges
   b. Change the Id1/Th1 and Id2/Th2 values using the "Edit" menu so that:
      - AV when the gauge is disabled is between Id1+/-Th1 or Id2+/-Th2 ranges
      - AV when the gauge is disabled is outside Id1+/-Th1 **and** Id2+/-Th2 ranges
      - Return to step 2 to retest

Note: If either gauge stage changes to "ON" during the configuration, may need to 'clear' a diagnostic error (indicated by a ⚠ in the VAC header) after completing the configuration.

Fork Load Sensor

1. Select a load sensor profile (Forklift, Pallet jack) using "Select" or choose "Next" if the profile is already correct

2. Select "Config" and follow the on-screen instructions.



3. Calibrate an 'empty' vehicle.
   a. Lower the forks or other attachment so there is no force on the truck.
   b. Select "OK"
   c. Select "OK" again to get the sampling screen.
   d. Lift the forks/attachment at least 3 inches from the previous position (higher if the vehicle is capable) *
   e. The sample count will decrement for each lift/lower.

4. Calibrate a 'loaded' vehicle.
   a. Enter the weight (in pounds) of your sample (ideally 2500 lbs.)
   b. Select "OK"
   c. Lift the forks/attachment with the identified load at least 3 inches from the previous position (higher if the vehicle is capable) *
   d. The sample count will decrement for each lift/lower.

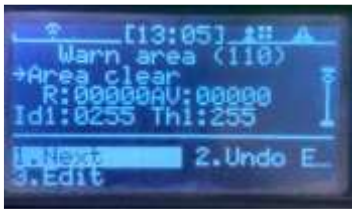
**Note: For best results, wait 3-4 seconds between lift and lower.*

Pedestrian Proximity Detection

1. Verify the WarnArea assignment are correct (e.g., 110 for VIM10)

HUB

2. Change the Id1/Th1 and Id2/Th2 values for the WarnArea using the "Edit" menu so that:
    a. ID1 = 0000
    b. Th1 = 050
    c. ID2 = 0000
    d. Th2 = 050



3. Verify there is no active area breach and the screen indicates "→ Area clear"
4. Enable create a warning area breach
5. Verify the "AV" value changes to a value outside the Id1+/- and Id2+/-Th2 ranges
6. The screen will change to "→ Area breach"
7. If the "AV" value is not outside the Id1+/-Th1 and Id2+/-Th2 ranges
    a. Change the Id1/Th1 and Id2/Th2 values using the "Edit" menu so that:
        i. AV with no breach is between Id1+/-Th1 or Id2+/-Th2 ranges
        ii. AV with a breach is outside Id1+/-Th1 and Id2+/-Th2 ranges
        iii. Return to step 7 to retest
8. Change the Id1/Th1 and Id2/Th2 values for the WarnArea using the "Edit" menu so that:
    a. ID1 = 0000
    b. Th1 = 050
    c. ID2 = 0000
    d. Th2 = 050

9. Verify there is no active area breach and the screen indicates "→ Area clear"
10. Enable create an alert area breach
11. Verify the "AV" value changes to a value outside the Id1+/- and Id2+/-Th2 ranges
12. The screen will change to "→ Area breach"
13. If the "AV" value is not outside the Id1+/-Th1 and Id2+/-Th2 ranges
    a. Change the Id1/Th1 and Id2/Th2 values using the "Edit" menu so that:
        i. AV with no breach is between Id1+/-Th1 or Id2+/-Th2 ranges
        ii. AV with a breach is outside Id1+/-Th1 and Id2+/-Th2 ranges
        iii. Return to step 7 to retest

Speed Sensor

1. Verify the speed assignment is correct (e.g., 106 for HUB VIM6 or 253 for GPS)
2. If using GPS for speed, see GPS configuration steps
3. For vehicle speed sensors, pulse calibration is REQUIRED:
   a. Select "Reset' on the speed screen
   b. Drive 1/100th of a mile (53 ft) and note "PC" value
   c. Select "Edit Pulses"
   d. Enter the "PC" value x10 noted in step 3.b
   e. Slect "Reset" again
   f. Drive 1/100th of a mile (53ft)
      - If "Dst" = 53ft, the configuration is complete
      - If "Dst" is not equal to 53, complete steps 3.1 through 3.f. again

Note: For greater accuracy you can drive more than 53 feet during the configuration test, however the value entered in the pulse counts has to be scaled to 528 ft.

GPS Receiver

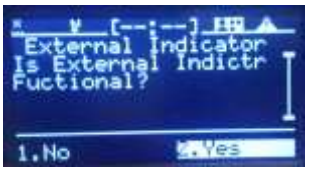
1. Verify the GPS assignment is correct (e.g., 101 for HUB VIM1 or 007 for VAC102)
2. Verify the "Status" indicates "InstalleD"
3. Verify the "VALD" indicates a number greater than 1
4. If "Status" is uninstalled, there is an issue with the wiring or the sensor itself, correct the issue, select "Enable" and return to step 2 or the sensor itself, correct the issue, select "Enable" and return to step 2
5. If "VALD" = 0 and "INVD" is greater than 1, there is an issue with the sensor

If you have configured Speed sensing using the GPS, go to the Speed screen and:

6. Drive a known speed and distance
7. Validate the "MxSpd" = the maximum speed
8. Validate that "Dst" = the distance you travelled
9. If either value is inaccurate, validate the VIM assignment for Speed.

Output Alert (Ext. Indicator)

1. Verify the Ext. Indicator assignment is correct (e.g., 107 for HUB VIM7)
2. When the External Indicator screen is displayed validate that the installed output alert (horn, alarm, strobe, creeper speed, etc.) is active (within 5 seconds)
3. If the output alert is active, select "Yes."
4. If the output alert is not active, select "No" and check the installation and VIM assignment.



Activity Assignment

Select which meters will be used as Activity. Once selected, these meters will determine the "activity" meter in reports and determine when the vehicle is being "used," thus preventing the idle timeout feature

1. Any meter with a ✓ next to it is selected as an activity input
2. Use the ▲ and ▼ buttons to highlight the meter you want to change.
3. Use the ► button to select a meter or the ◄ button to deselect a meter

Counters

1. The VAC permits assigning meter offsets to better reflect the status and history of a vehicle (rather than having all meters start reporting from zero).
2. To change the 'baseline' count for any meter, select "Edit" and type the baseline values for the meter.

NOTE: The VAC meters are in MINUTES, so if copying from an Hour meter, multiply the Hour Meter by 60 using a calculator.

28. Install cable ties to strain relief cables.

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

29. Wi-Fi Configuration (for Wi-Fi enabled VACs only)

If the VAC has not received a valid Wi-Fi configuration from a WAM or other VAC in transmit mode (refer to the *Powerfleet Hardware User's Guide* for details), these credentials can be entered manually or synchronized via VAC Jack.

⚠ **Validate compatibility using the Powerfleet Wi-Fi Test tool before proceeding!**

29a. Manually entering Wi-Fi credentials on the VAC using the keypad.

29a-1. Log into the VAC as a Maintenance Operator or IT Operator.

29a-2. From the main menu, select the Wi-Fi menu option.

29a-3. If the VAC is in range of wireless networks, a list will appear on the VAC screen.

29a-4. For sites using STATIC IP ADRESSES for VACs (DHCP sites should skip this step).
29a-4a. Select "VAC IP"
29a-4b. Select Static
29a-4c. At prompt, enter the requested IP, Subnet Mask, and Default Gateway values, then press ENTER. ****Use leading zeros as appropriate.** (e.g., IP Address "150.215.17.9" is entered as "150.215.017.009")

29a-5. Enter the details of the server running system application software.
25a-5a. Select "Server IP"
25a-5b. Select the server IP 'type' (Static IP or Domain Name)
25a-5c. Type in prompted data using either the Server IP or Domain Name
25a-5d. Type the Server Port

This information is provided to you by Powerfleet**

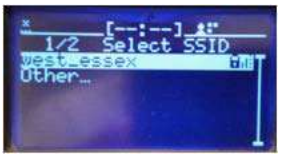
Note: The 29a-5 steps must be followed in the order specified for the VAC to connect to the server

29a-6. Select the *Connect* menu option.

29a-7. Select the desired wireless network.

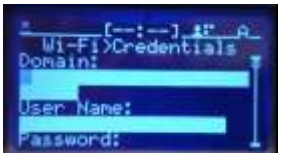
29a-7a. If the VAC display lists the desired SSID, use the up and down scroll arrows to select the desired SSID from the list.

i. Press the ENTER key.
ii. Enter the credentials for the selected SSID in the locations provided. Use the navigation arrows to skip to different areas of the text entry boxes.
Note: For WEP credentials, 10 or 26 HEX (0-9; A-F) characters must be entered (ASCII entry not permitted).
iii. Press ENTER key.
iv. The VAC will automatically attempt to connect to the selected SSID using the credentials provided.



29a-7b. If the VAC display does not list the desired SSID, select the OTHER menu option and press ENTER.

i. Using the VAC keypad, manually enter the SSID.
ii. Select the security method that corresponds with the SSID.
iii. Enter the credentials for the SSID.
Note: For WEP credentials, 10 or 26 HEX (0-9; A-F) characters must be entered (ASCII entry not permitted).
iv. The VAC will automatically attempt to connect to the SSID using the credentials provided.
Note: To successfully content, the VAC must be within wireless communication range of the SSID.



29a-8. One connected, the VAC screen will display the Wi-Fi status indicator.

29a-9. For instruction on how to broadcast the VAC's Wi-Fi credentials to nearby VACs that have not been configured, refer to the *Powerfleet VAC4 Hardware User's Guide*.

29b. Loading Wi-Fi credentials from a configured USB Flash Drive using a VAC Jack.

29b-1. Insert a configured USB flash drive in the VAC Jack (refer to the *Powerfleet Hardware User's Guide* for information on configuring the USB flash drive).

29b-2. Connect the VAC Jack to the VAC.

a. Unplug the Vehicle Cable from the VAC.
b. Plug the AC wall adapter into the VAC Jack to power up the VAC Jack.
c. Make sure the VAC Jack button is pressed in and the corresponding LED is on.

29b-3. Plug the VAC Jack into the VAC.

29b-4. The VAC Jack button LED will illuminate while reading data from the USB and programming the VAC. During this time, the VAC will indicate programming status via LEDs and an on-screen progress message.

29b-5. Once complete, unplug the VAC Jack from the VAC.

29b-6. If powered by the Vehicle Cable, unplug the Vehicle Cable from the VAC Jack and plug the Vehicle Cable back into the VAC.

29b-7. The VAC's default Wi-Fi configuration used DHCP. To configure the VAC to use a Static IP address, refer to sub-steps Steps 29a-1 – 29a-6 to configure the IP address of the VAC.

29b-8. With the VAC installed, it will automatically attempt to connect using the new Wi-Fi credentials.