Verizon Connect Networkfleet
5000 Product Line
Installation Guide

5500 Diagnostic Hardware
(Light/Medium/Heavy Duty)
5200 Non-Diagnostic Hardware
(Universal)
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Registration Form

Fill out the enclosed registration form before completing installation.

Record the following information:
• Vehicle Identification Number (VIN)
• License Plate
• Year
• Make
• Model
• Unit’s Serial number (10 digits)

Installation Tip:
Metal walls and tall buildings may interfere with the reception from GPS satellites and the cellular network. Perform installation when the vehicle is in clear view of the sky. Conduct final installation verification after the vehicle has been running outside for 15 minutes.
5000 Product Line Unit Overview

Note:
All 5500 and 5200 units are shipped with a knock-out panel covering the sensor/serial ports. In order to access those ports, you must use an X-ACTO knife to slice off 2 of the 3 tabs in order to remove the knock-out panel.
Harness Options for the 5000 Product Line

Prior to installation, you must select and order the appropriate harness for our vehicle type. The Light/Medium Duty OBD-II Harness and the Heavy Duty Harnesses are compatible with both the 5500 and 5200 hardware devices. Please refer to the list below to verify harness compatibility for each of the 5000 series devices:

5500 (Diagnostic Capable Hardware)
- Light/Medium Duty OBD-II Harness
- Heavy Duty Harnesses
  (6-pin, 9-pin, or 9-pin “D”)

5200 (Non-Diagnostic Hardware)
- Universal Harness
- Light/Medium Duty OBD-II Harness
- Heavy Duty Harnesses
  (6-pin, 9-pin, or 9-pin “D”)
Harness Options for the 5000 Product Line

There are 3 different harness options for Heavy Duty vehicle installations:
- 6-pin Harness
- 9-pin Harness
- 9-pin “D” Harness.
Light/Medium Duty OBD-II Harness Installation

Select an adapter that most resembles the shape of the OBD-II port of the vehicle. Use these guidelines to match an adapter to the vehicle it is most likely to fit (each adapter is stamped with a number).

Ford, GM (1), (6), or (8)
Honda, Lexus, Toyota, Chrysler (2)
Toyota*, Chrysler* (2a)
GM, Saturn (3)
Mercedes, BMW (4)
Porsche, Audi, Volkswagen (5)
Volvo (6)
Saab (7)

*For certain Toyota and Chrysler vehicles, you may need to adjust the #2 adapter by removing the clips on the top and bottom of the adapter. To the right is an example of the adjusted adapter labeled (2a).
**Light/Medium Duty OBD-II Harness Installation**

**Core Connector Assembly**
1. Snap the selected plastic adapter to the back of the Core Connector.
2. Attach the Core Connector to the OBD-II Replacement Connector.

**Data Port Connection**
1. Connect the Harness Connector to the Data Port.
Light/Medium Duty OBD-II Harness Installation

Connecting to the OBD-II Port
1. With the vehicle’s engine OFF, remove the vehicle’s OBD-II port.
   • The OBD-II Connector may be hidden behind a hush panel.
   • To remove the connector, you may need to remove screws or depress the clips.
2. Connect the Bypass Connector to the vehicle’s OBD-II port that was previously removed.
3. Attach the Core Connector to the position where the original OBD-II connector was installed. Secure it with the screws or clips removed from the OBD-II Connector’s original position (if applicable).
**Light/Medium Duty OBD-II Harness Installation**

**Connecting to the Diagnostic Link Connector (DLC) Port**

1. With the vehicle’s engine OFF, unscrew the DLC port from its position under the dashboard*. In most cases, the DLC port is located under the dashboard on the left side of the steering wheel, facing toward the floorboard.

2. Plug the Bypass Connector of the harness into the DLC port that was previously removed from the vehicle in step 1. For the 9-pin connector, turn the rotating cap clockwise to lock into place.

3. Mount the Core Connector of the harness into the place in which the DLC port originally resided.

*Note: DLC Port Connector may also be located near or behind the driver seat.*
Universal Harness Installation

Connecting to Ground and Power

Black Wire – Ground

• With the vehicle’s engine OFF, attach the Black Wire directly to a chassis ground point or to a ground line (chassis ground) by splicing directly to a ground lead or by using a wire tap (recommended).

Red Wire – Continuous Power

• With the vehicle’s engine OFF, use the voltmeter to locate a 12-volt BATTERY lead and attach the Red Wire by splicing directly to the lead or by using a wire tap (recommended). If attaching to a fused lead or using an in line fuse (not necessary), verify that it is at least 5 amps.

• Be careful not to confuse a “Retained Accessory Power (RAP)” line with a true Continuous Power line (12 volt, always ON line).

Note: Please ensure that the Driver Door is OPEN during the ENTIRE installation process.

• To determine a true Continuous Power source:
  1) Ensure the Driver Door is OPEN
  2) Select a wire
  3) With vehicle’s engine OFF, use a voltmeter to measure the DC voltage on the wire. It should show 12 VDC or higher.
Universal Harness Installation

Blue Wire – Switched Power

- With the vehicle’s engine OFF, use the voltmeter to locate an IGNITION line with switched power and attach the Blue Wire to the line by splicing directly to the lead or by using a wire tap (recommended)
- Do NOT use an in line fuse on this line.
- Do NOT use accessory Power.

- To determine a switched power source:
  1) Ensure the Driver Door is OPEN
  2) Select a wire
  3) With engine OFF, use voltmeter to measure the DC voltage on the wire. It should show 0 VDC.
  4) Start the engine and confirm that the voltage of the same wire is 13.1 VDC or higher
  5) Turn the vehicle’s engine OFF and confirm that the voltage of the same wire is 0 VDC
Verifying Successful Installation

1. Start the vehicle’s engine. All lights (Red, Yellow, and Green) on the device should turn on solid for 15 seconds and then begin blinking rapidly (twice a second).

2. The device is operating normally when the rapid blinking ceases and the Green and Yellow lights begin to blink in a slow pattern (ON for 5 seconds and OFF for 1 second). The Red light pattern will continue to vary and should not be used to verify installation.

3. The vehicle must be idled or driven for at least 15 minutes to reach normal operating mode and ensure activation is complete.
Creating Tamper Evidence

Once the vehicle harness is plugged in, slide the Verizon Connect Networkfleet branded yellow zip ties through the two slots provided on the harness connector. Once the zip ties are in place, tighten and remove the excess plastic. If possible, position the zip ties so that the “DO NOT REMOVE” message is showing.
Creating Tamper Evidence

Before securing the device under the dashboard, make sure that you have recorded the VIN, hardware serial number, and odometer reading on the registration form. Also verify that you have checked the light indicators. After installation, provide the registration form to the fleet manager for delivery to Networkfleet or if you are a Verizon Connect Networkfleet Certified Installer, please fax to 866.616.2131 or email to installs@networkfleet.com.
Creating Tamper Evidence

Use zip ties to fasten the hardware securely to a stable bracket or wire bundle under the dash.

**IMPORTANT:** The device must be installed high in the dashboard area and secured with the top of the unit facing the sky (the side of the unit with the Networkfleet logo). Also verify that the device is not covered by metal and check that the green LED is blinking in a slow pattern, which verifies that the unit is getting GPS data (as explained on page 13).

To avoid damage from condensation, ensure that the unit is not at the lowest point of the installation and secure it away from moving parts.
Optional Window-Mount GPS Antenna Installation Instructions

To Install

1. Units are shipped with a knock-out panel covering the sensor/serial ports. First, use an X-ACTO knife to slice off 2 of the 3 tabs in order to remove the knock-out panel.

2. Use enclosed alcohol preparation pad to clean the inside windshield where the antenna is to be placed. For proper operation, the antenna should be placed on flat, clear glass on the driver's side interior lower corner of the windshield. Ensure that the antenna does not extend more than 4 ½ inches from the bottom of the interior windshield and is located outside the area swept by the windshield wipers. **Do NOT place the antenna in the following areas.** Behind stickers or decals already on the glass, on the shade band of the glass, on a curved area of the glass, on a moist or damp area of the glass, or on an area that will obstruct the driver’s view.

3. Connect the window-mount GPS antenna to the serial port on the side of the unit.

4. Run the cables up the door seam or up through the dashboard.

5. Remove the protective strip from the antenna to expose the adhesive.

6. Carefully affix the antenna to the glass that was prepped in Step 2. Press the antenna firmly to the glass while being careful not to damage the antenna.

**Note:** The optional window-mount GPS antenna, the modified Garmin FMI cable, or the NMEA cable cannot be used simultaneously. You may only use one of these accessories at a time.

**Installation Tip:** Please note that the ideal temperature range to perform the installation is between 70°F to 100°F (21°C to 38°C) with a minimum suggested application temperature of 60°F (15°C). IRE installation process.
Optional Sensor Installation Instructions

The 5500 and 5200 devices include a sensor port for monitoring various voltage events occurring within the vehicle such as: PTO engagement/disengagement, secondary engine on/off, and door open/close.

Please review prior to performing sensor installation:

• Installer shall use only a digital multi-meter to verify that line Voltage and Amperage are within the product tolerances.
• Installer shall use 24 gauge (minimum) wires for installation.
• Electrical connectors must be used when attaching sensor wires.
• Voltage testing should always be performed with a vehicle door open to avoid retained accessory power issues.

The 5500/5200 comes equipped with two sensor inputs. Each sensor will be associated with a pair of input wires. One pair of wires (Purple, Black) will be associated with Sensor 1 and the other pair of wires (Blue, Black) will be associated with Sensor 2.

Use the Black wire of each pair to make a secure vehicle ground connection. Then, connect the other wire (Blue or Purple) of each pair to the desired signal to be monitored.
If only one wire pair (sensor input) is to be used, the other pair must be twisted together and insulated via heat shrink or some other secure means to prevent contact with any vehicle structures and to ensure it does not interfere with any moving parts in the vehicle.

The signal to be monitored should have two voltage states: One where there is no voltage (i.e. zero volts when referenced to ground) and another that falls in the range +5 to +24 or -5 to -24 volts. The signal being monitored should be capable of supplying 3 mA when a voltage is present. It is important that the voltage signal be tested to ensure it is continuously providing the necessary voltage and current when in the “on” or “active” position.

The following table shows how the signals are interpreted.

<table>
<thead>
<tr>
<th>Wire A (Black)</th>
<th>Ground or reference for wire B</th>
</tr>
</thead>
</table>
| Wire B (Blue or Purple) | Off \((-3V < x < +3V)\)  
                           | On \((-24V < x < -5V \text{ or } +5V < x < +24V)\)  
                           | Undefined \((-5V < x < -3V \text{ or } +3V < x < +5V)\) |

**Note:** If you’re replacing a previously installed 3500/SSEM with sensor input(s) with a 5000 series unit, you must reinstall the sensor inputs using the Sensor Input Harness available for the 5000 series unit. The SSEM sensor harness is NOT compatible with the 5000 series units.
Optional Sensor Installation Instructions

To Install

1. Units are shipped with a knock-out panel covering the sensor/serial ports. First, use an X-ACTO knife to slice off 2 of the 3 tabs in order to remove the knock-out panel.

2. Connect the Sensor Input Harness to the Sensor Port on the 5500 or 5200 device.

3. Verify installation by checking the LED behavior of the device (see page 23) and call Customer Care at 866.227.7323 and select Option 5.

4. Before securing the device under the dashboard, make sure you have recorded the appropriate information on the Sensor Installation Card included with the Sensor Input Harness. Once all information is recorded, follow the instructions detailed on the card to update your fleet on www.networkfleet.com.

Note: The optional window-mount GPS antenna, the modified Garmin FMI cable, or the NMEA cable cannot be used simultaneously. You may only use one of these accessories at a time.
Optional Garmin® Installation Instructions

To Install

1. Units are shipped with a knock-out panel covering the sensor/serial ports. First, use an X-ACTO knife to slice off 2 of the 3 tabs in order to remove the knock-out panel.

2. Connect the modified Garmin FMI Cable to the Serial Port on the 5500 or 5200 device.

3. Plug the other end of the modified Garmin FMI cable into the Garmin device.

4. **Required:** To verify installation and to enable Garmin functionality, call Customer Care at 866.227.7323 and select Option 5.

5. Before securing the device under the dashboard, make sure you have recorded the appropriate information on the Garmin Installation Card included with the modified Garmin FMI Cable. Once all information is recorded, follow the instructions detailed on the card to update your fleet on www.networkfleet.com.

Verizon Connect Networkfleet is only compatible with Garmin devices that support Fleet Management Interface Version 2.6 and higher.

The list of compatible units can be found here: www.garmin.com/solutions/pnd/supportedproducts.jsp (look for “Supports Version 2.6 Fleet Management Interface” in the description).

**All Garmin devices, even if they support Fleet Management Interface Version 2.6, will need a firmware update prior to installation.** Please contact your sales representative or Verizon Connect Networkfleet Customer Care to obtain update instructions.

**Note:** The optional window-mount GPS antenna, the modified Garmin FMI cable, or the NMEA cable cannot be used simultaneously. You may only use one of these accessories at a time.
Optional NMEA Feed
Installation Instructions

Location data is available directly from the 5000 series hardware to another in cab device via our serial port interface. The feed is in NMEA format and requires a 5000 series hardware device, a Verizon Connect Networkfleet NMEA Cable, and a terminating device such as a laptop that can accept NMEA data.

To Install

1. Units are shipped with a knock-out panel covering the sensor/serial ports. First, use an X-ACTO knife to slice off 2 of the 3 tabs in order to remove the knock-out panel.

2. Connect the NMEA Cable to the Serial Port on the 5500 or 5200 device.

3. Verify installation by checking the LED behavior of the device and call Customer Care at 866.227.7323 and select Option 5. The device is operating normally when the rapid blinking ceases and the Green LED begins to blink in a slow pattern (ON for 5 seconds and OFF for 1 second).

4. Before securing the device under the dashboard, make sure you have recorded the appropriate information on the Installation Card included with the NMEA Cable. Once all information is recorded, follow the instructions detailed on the card.

Note: The optional window-mount GPS antenna, the modified Garmin FMI cable, or the NMEA cable cannot be used simultaneously. You may only use one of these accessories at a time.
Verifying Successful Installation/LED Behavior

To verify successful installation, call Customer Care at 866.227.7323 and select Option 5.

LED Behavior for Sensors:
When the Sensor Input Harness is detected by the unit, all LEDs should be turned on solid for 10 seconds. When you engage Sensor 1 (if installed), the yellow LED shall blink rapidly (1/4 second) every time a transition is detected (on to off/off to on). When you engage Sensor 2 (if installed), the green LED shall blink rapidly (1/4 second) every time a transition is detected (on to off/off to on). The sensor installation verification will take one minute in total. Afterwards, all LEDs should be turned on for 10 seconds and then normal LED behavior will resume.

To ensure activation is complete, the vehicle must be idled or driven for at least 15 minutes to reach normal operating mode.

Note: If voltage does not meet the standards detailed in this guide, the installation may require the use of a relay switch to properly connect the sensor.
Verifying Successful Installation/LED Behavior

LED Behavior for Garmin:
When the Garmin or window-mount GPS antenna is connected to the serial port, all LEDs should be turned on solid for 10 seconds. Afterwards, the red LED shall double blink every two seconds. The installation verification will take one minute in total, then all LEDs should be turned on for 10 seconds. Thereafter, then normal LED behavior will resume.

Please note that the blinking pattern shows successful connection with the device, but it does not verify successful communication with the Verizon Connect Networkfleet website. To verify successful installation, call Customer Care at 866.227.7323 and select Option 5.
Appendix: Troubleshooting
Light Indicators

Issue: Red light continues to blink rapidly
Solution: • Verify that the unit is not surrounded by metal.
• Contact Customer Care to confirm network coverage availability and the SIM is active.

Issue: Yellow light continues to blink rapidly
Solution: • Contact Customer Care to verify engine computer compatibility.
• If incompatible, install a Universal device (5200).

Issue: Green light continues to blink rapidly
Solution: • With the vehicle’s engine OFF, unplug the device for 3 minutes and check each item below before reconnecting.
• Verify that the unit is not surrounded by metal.

If using the window-mount GPS antenna:
• Disconnect the GPS Antenna wire and check the antenna wire and connector for damage.
  • Reconnect the GPS antenna wire to the serial port.
  • Reconnect device, start engine and keep the vehicle running or drive it for 10-15 minutes.
Appendix: Troubleshooting
Light Indicators

Issue: Yellow light stays on solid
Solution: • Verify that you are in an area with wireless coverage.
• Wait 15 minutes with the vehicle’s engine on.
• Verify web portal activation has been completed.

Issue: Green light stays on solid
Solution: • Verify that the unit was installed properly. The side of the unit with the Networkfleet logo should be facing the sky.
• Make certain that the unit is not blocked by underground parking structures, metal, or trees. If using the window-mount GPS antenna:
  • Disconnect the GPS Antenna wire and check the antenna wire and connector for damage.
  • Reconnect the GPS antenna wire to the serial port.
  • Reconnect device, start engine and keep the vehicle running or drive it for 10-15 minutes.
Frequently Asked Questions

Q: Are the 5000 series harnesses interchangeable between all other Verizon Connect Networkfleet product lines?
A: No.

Q: When installing the 5200 device, are fuses involved or can the device be “wired hot”?
A: We recommend splicing the 5200 harness to fused leads, though the device can be “wired hot” since there is an internal re-settable fuse. An in line fuse is not necessary, however if one is used, it should be at least 5 amps.

Q: Can the window-mount GPS antenna be installed in the A-Pillar?
A: No, the antenna is designed so that it will only function properly with a clear view of the sky which is best achieved by placing it on the glass windshield.

Q: I need to do a unit transfer. Can I re-use the window-mount GPS antenna? How do I remove it from the glass?
A: Yes, however the adhesive on the antenna is one-time use only and will not function properly after it is removed. Re-installation kits are available - contact Customer Care at 866.227.7323 for more information.

Instructions for Window-Mount GPS Antenna Removal
Because of the strength of the antenna adhesive, use a razor or Goo Gone (a household solvent) for removal.

1. To remove the antenna with a razor, peel a small section of the antenna off of the glass and slide the razor between the glass and the antenna.
2. Using a sawing motion, carefully remove the antenna from the glass and discard.
If you have any additional questions, you may contact Verizon Connect Networkfleet Customer Care:

**Toll Free Number**: 866.227.7323  
**Email**: nwfsupport@verizonconnect.com

go.verizonconnect.com/networkfleet

For questions or more information, contact your Customer Success Manager or email sdcustomersuccess@verizonconnect.com