CAN tech.

CANnect.

Vehicle diagnostics in the palm of your hands.

INSTALLATION AND USER MANUAL

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About CANnect

CANnect is a device that allows you to access vehicle information. You will use our Reader to access and process the vehicle information with the user interface on the mobile app. You will be able to access the information of vehicle conditions which allows you to access and analyze the status of the vehicle. The vehicle information is both provided by the internal vehicle PIDs as well as our custom modules such as the 6 Degree of Freedom (DoF) sensor and GPS/Tracking module.

Before You Start

- Ensure your vehicle is On-board Diagnostics-II (OBD-II) and CAN Bus compliant (vehicles manufactured after 1996 and 2008 respectively, in the US).

- OBD-II compliant vehicles will have a 16 pin DLC connector usually located on the driver's side under the dash. To verify if your vehicle supports CAN Bus protocol, the connector should have metallic contacts at pins 4, 5, 6, 14, and 16.

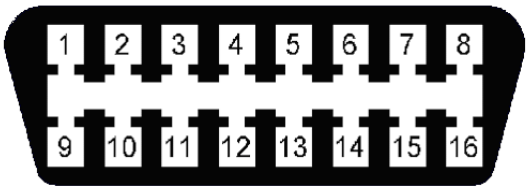

Figure 1: OBD-II Port Connections

- The CANnect reader and supporting modules are designed to operate under normal vehicle battery voltage between 11-15V.

- WARNING! Please reference your vehicle manufacturer's safety instructions prior to use/ installation, or consult an automotive expert before tampering with vehicle configuration if unsure.

Getting Started

1. Download our CANnect App available on the Google Play Store (Android Devices) at the following link: https://play.google.com/store/apps/details?id=com.cantech.cannect

2. Locate OBD-II port locations in your vehicle.

The App will communicate with the reader to display information related to the vehicle systems as well as additional information such as: sensor and GPS location data. After successfully downloading the app on a supporting Android device:

1. While vehicle ignition is OFF, connect the reader to the OBD-II port of your vehicle.

2. A steady *green* led light indicates the reader power is on, and a flashing *red* led light means the device is ready for Bluetooth pairing.

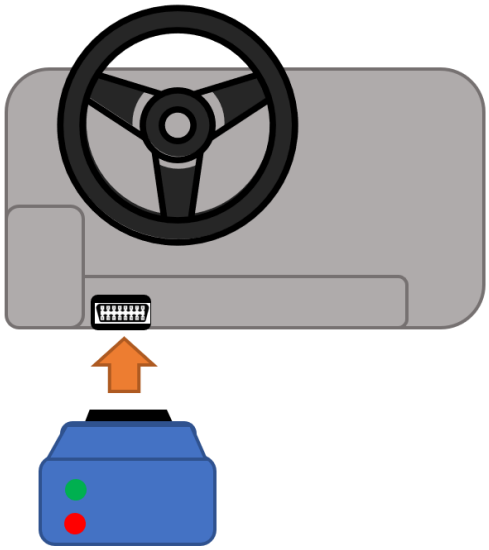

Figure 2: Connecting the CANnect Reader to Your Vehicle's OBD-II

CANnect Reader

Configuring the Reader

1. When the reader is connected to the vehicle OBD II port, a flashing red-led light indicates the reader is searching for Bluetooth compatible devices (Android phone) to pair with.

2. Turn the vehicle ignition ON, and connect to the reader from the app via Bluetooth*. Do not turn off the engine during the use of the app.

3. Once the two devices are paired, the red-led will stop flashing and a green-led will light up.

4. The reader does not have an internal battery and will turn-off when it is unplugged from the OBD II port.

5. Since the OBD II port is always powered on when the vehicle engine is off, the reader will also be powered on as long as it is plugged in.

6. Your reader has been successfully set up and is ready to send vehicle system information to the app.

** For Bluetooth troubleshooting, reference the Using the App Section of the user manual*

6 DoF Sensor

CANnect allows car hobbyists to explore more about the vehicles with a 6DOF sensor. The sensor enables users to view current vehicle orientations and translations on the app. The section below outlines placing the sensor in your vehicle and pairing it with the reader to view acceleration and gyroscope data on the app.

Placing the Sensor in your Vehicle

1. Place the CANnect sensor at any place in the vehicle interior. CANtech recommends placing as close to the center of mass of your vehicles such as underneath the driver's seat or center console.

2. Locate the nearest automobile auxiliary power outlet (car cigarette lighter outlet) and plug in the adapter included in the package to power on the sensor.
    a. If you wish, you may connect wires directly from a +12V line to the connector pins. CANtech recommends a +12V line that turns on when the key is in. Ensure the wires are professionally installed.

Pairing the Sensor with the Reader

For this step ensure the reader is plugged into the OBD-II port in your vehicle. Once the sensor has been placed in the desired location in the vehicle, and a power connection has been established, observe the indicator lights to calibrate the sensor connection between the reader.

1. When the power is on, a flashing red-led light indicates the sensor is trying to establish a connection with the CANnect reader via Wi-Fi.

2. Once the connection is confirmed, instead of flashing red-led, observe a fixed steady green-led light.

GPS/Tracking Module

CANnect can support an additional add-on module to enable location tracking of a vehicle. This tracking module encompasses an LTE/GPS combo or separate LTE and GPS components which sends longitude and latitude information to Firebase which is received on the app.

Note that the use of this feature requires Firebase, a service operated by Google. In using this component, the user agrees that their location information may be processed and handled by Google and its operating partners who may be located outside of Canada - this is typically the United States.

For this module, it uses the SIMCOM SIM7000A LTE module. Since this module uses a special variant of 4G LTE instead of the traditional version, make sure to check with the cellular provider of choice that the SIM Card service supports these requirements.

- LTE Band 2 (1900 MHz)
- LTE Band 4 (AWS 1700/2100)
- LTE Band 12 (700 MHz)
- LTE Band 13 (700 MHz)
- LTE CAT-M1 (often referred to as eMTC or LTE-M) or LTE CAT NB1 (referred to as NB-IoT)

CANtech recommends Hologram for its single rate for global coverage across multiple networks and is the network that CANnect has been tested with. Otherwise, Telus is an alternative option for nation-wide usage in Canada only.

Setting up the Hardware for Tracking Module

1. Screw or attach the provided antennas onto the connectors labeled “LTE” and “GPS.”
2. Insert a SIM Card in the microSIM size format.
3. Provide power to the module
    a. Use the provided power adapter to the vehicle’s auxiliary power outlet, or
    b. Connect the wires directly from the +12V line to the connector pins on the module. Perform this step with professional assistance.
4. An LED indicator for “PWR” should light on to indicate it is on.

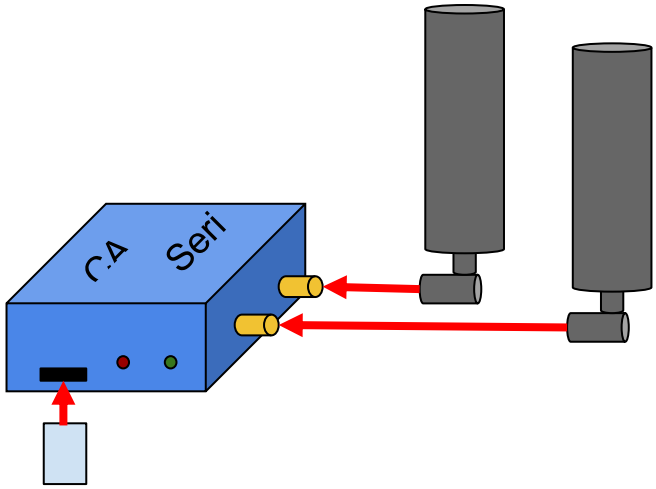

Figure 3: CANnect Tracker Module

5. Position the module such that the antenna has a clear sight of the sky.

Setting up the Software and Network Connection

1. Follow steps 1-6 in “Using the App” to pair the reader to the app.
2. In Settings, choose the **GPS Tracking** section
3. Log in with your credentials for CANnect car-tracking using an email and password. It should say **Logged In** if successful.
    a. For new users without an account, provide the email and password you want to use and press login. The login system will assign a new user profile with your login information.
4. Type in the Access Point Name (APN) in the field for **APN Setting** for your SIM Card service. For Hologram, this is “hologram”. Check with your service provider if you are not sure what this is.
5. Choose the option to **Pair** your tracking module to the app. This may take a few moments.
6. The status should say it is **paired**. The number on the module should match the paired device number in the app. Your module should automatically connect to the cellular service and send its coordinates. An LED indicator for “LTE” should blink occasionally if it is connected.

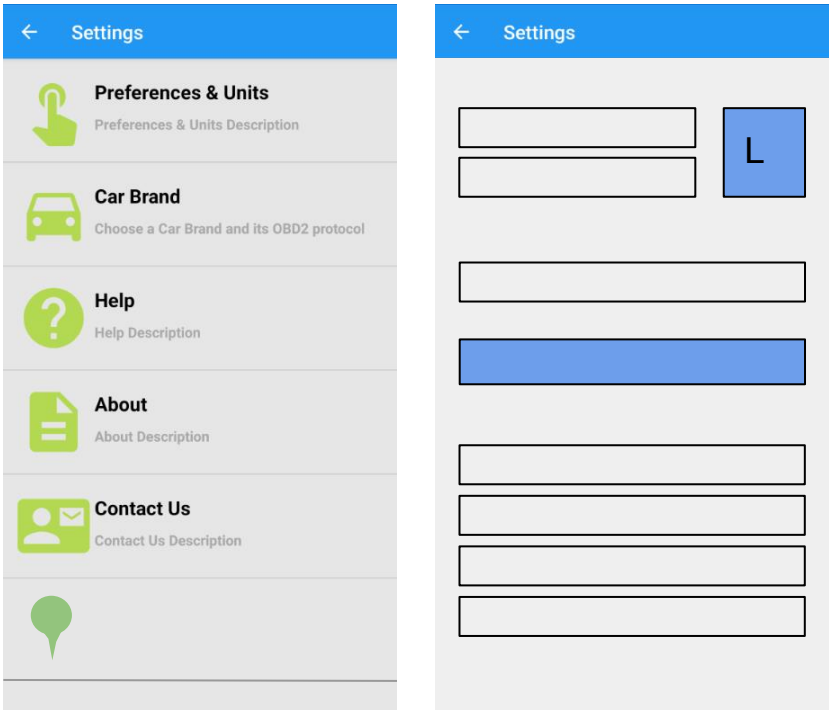

Figure 4: GPS Tracking with Account Setup

7. If you need to reconfigure the APN, follow steps 4-6. If the app does not show any update coordinates, check to see if the "LTE" indicator is blinking. If not, check to see if the APN is correct and that the module is in an area with cellular coverage.

Using the Tracking Module

1. Open the CANnect app.
2. Choose the Map option.
3. The location of the tracking module should be shown as a marker on the map.
4. To request the location manually, press the refresh icon. The location should show up within 1-2 minutes. The module will send updates every hour.

Figure 5: Map Screen with the Tracked GPS Location

Using the App

1. Launch the CANnect app. Make sure the engine is turned on before connecting the app to the reader
2. Click on the **Connect** button at the bottom of the screen to pair with the reader.
3. If Bluetooth is not already turned on, click **BLUETOOTH ON** to turn it on.

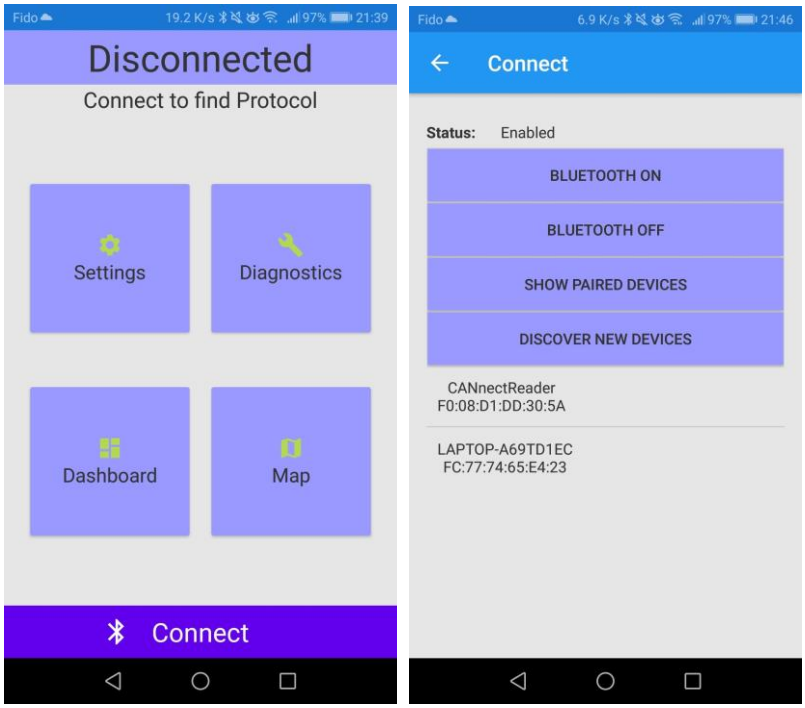

Figure 6: From Main Menu to Connect Screen

4. Click **DISCOVER NEW DEVICES** and select **CANnectReader** to start pairing with the reader.
5. Upon successful pairing with the reader, a **Connected** message will be displayed at the bottom.
6. Click ⟵ at the top left of the screen to go back to the previous screen.
7. Red text, **finding protocol…,** indicates that the reader is automatically searching the correct protocol to communicate with the vehicle OBD II. This process can take up to 30 seconds.
8. Upon finding the correct protocol, **Protocol has been found**, the blue text will be displayed as seen in Figure 5 below.
9. However, **Can't find the correct Protocol!** will be displayed instead of the vehicle protocol is not supported by the CANnect reader.

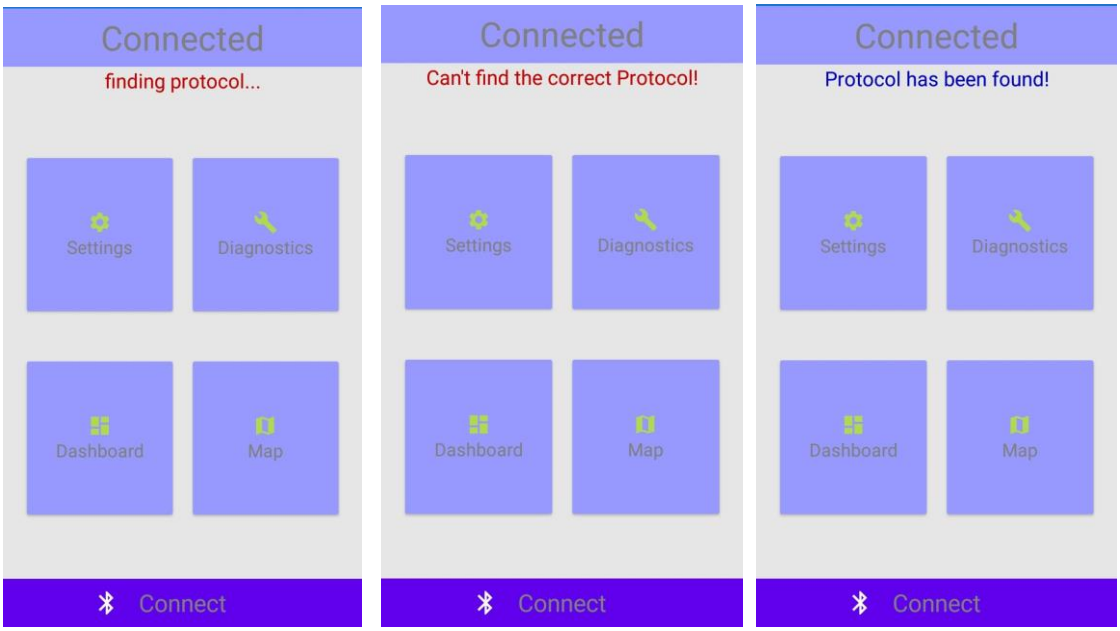

Figure 7: Finding Vehicle Protocol

10. To add basic PIDs to the **Table** page, click on **Settings,** then **Car Brand** to select different protocols from the list. Pop up menu will be displayed. Users can choose up to 5 different PIDs.

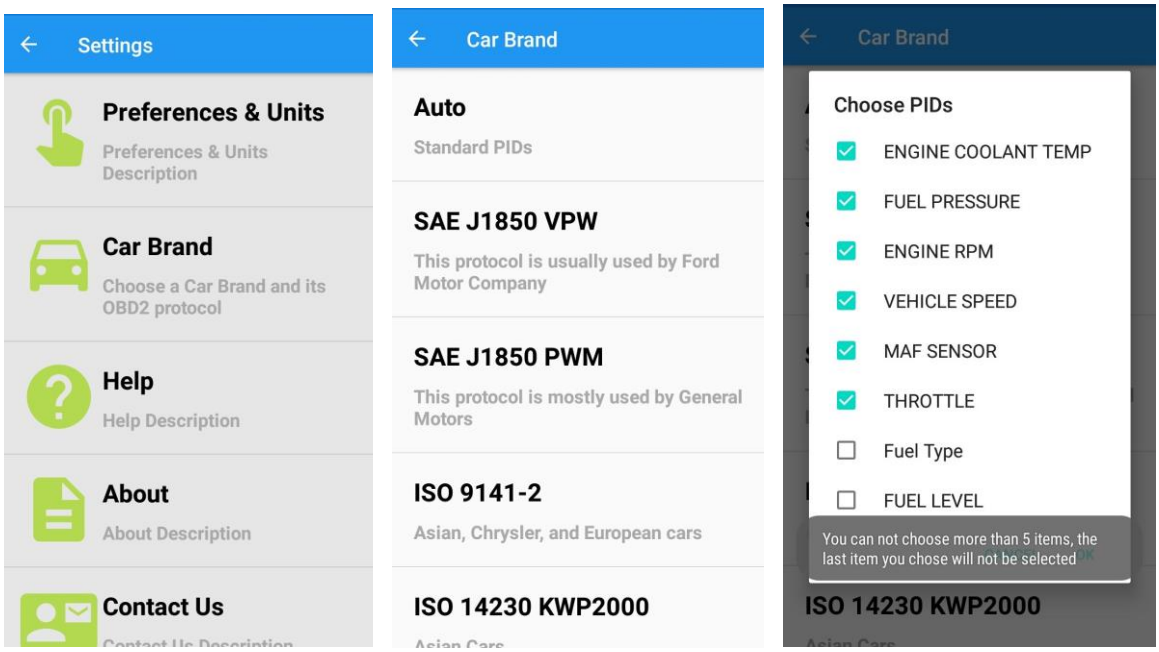

Figure 8: Adding PIDs to Table Page

11. Click ⟵ at the top left of the screen to go back to the previous page.
12. To view current vehicle information, click on **Dashboard**.

13. **Table**, **Chart, Gauge,** and **DOF** tabs at the bottom of the page offer different displays of the information.
14. On the **Table** page, users can view previously selected PIDs along with the sensor reading from the sensor module.
15. On the **Chart** page, users can view different PIDs by choosing from a drop-down list. The graph can also be zoomed in/out by pinching the screen.
16. On the **Gauge** page, users can also view different gauges by long pressing on either four boxes. Doing so will pop out the menu window from which users can select various options. Some of the PIDs will not display any values as some vehicle protocol lacks the corresponding sensor PID.

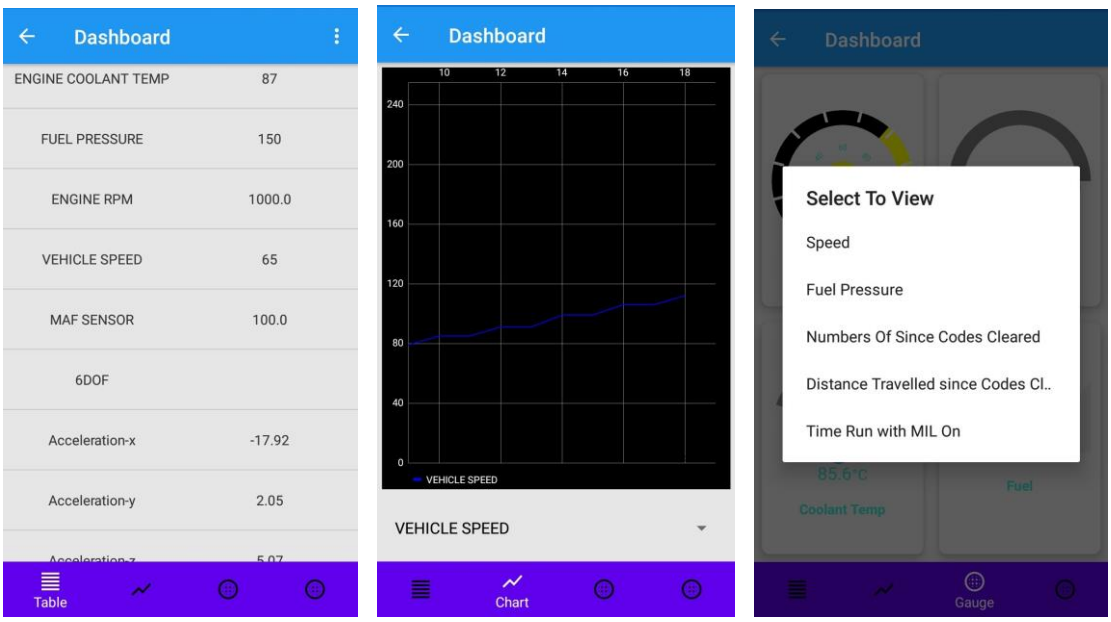

Figure 9: Dashboard Page Showing 3 Different Displays

17. In addition, users can also view the **Friction Circle** to visualize the forces on the car.
18. The CANnect reader can also display the current DTC(Diagnostic trouble code) and its description on the **Diagnostic** page.

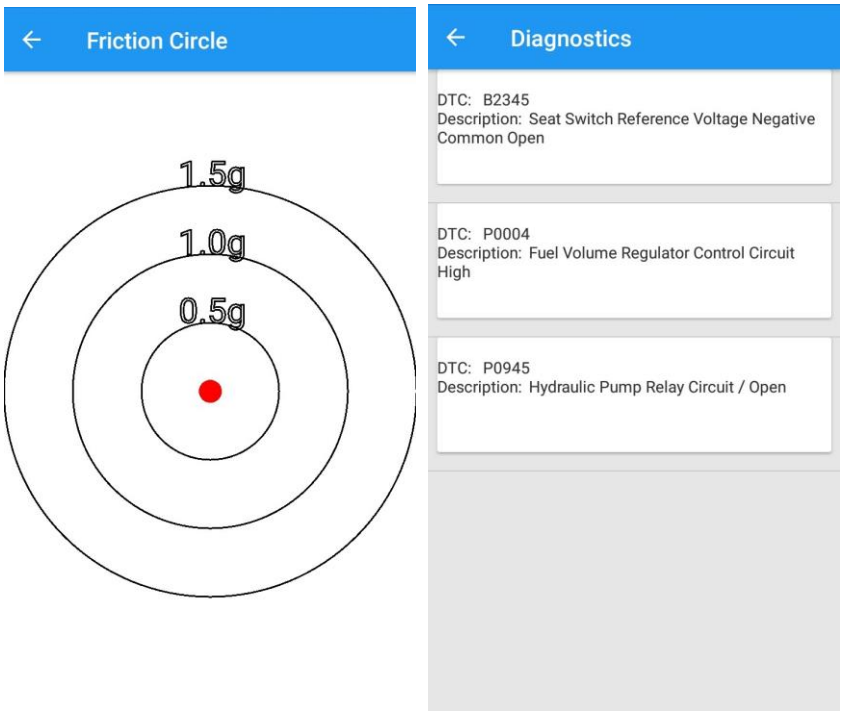

Figure 10: Friction Circle and Diagnostics page

19. Navigate to the **About** and **Contact Us** pages from the **Settings** page to find out more about the product and the company.

Maintenance

1. The vehicle OBD II port is always on and no voltage spike during the starting of the engine. Thus, it is safe to leave the CANnect connected to the vehicle OBD II port. However, it is recommended to unplug and store away after each use.

2. Ensure to turn on the car engine before using the app, so that the app can instruct the CANnect reader to find the correct protocol.

3. If the app is closed, the reader must be unplugged from the OBD-II port and plugged back in before relaunching the app again.

4. Stay up-to-date with the software updates for the app.

5. Make sure that your cellular service is active with sufficient data or balance leftover. CANnect typically requires about 2.5 - 3 KB per upload. Therefore, it requires around 2.5 MB for automatic uploads every hour for a 31 day period.