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HobDrive User's Manual

HobDrive is an onboard computer and diagnostic platform for your vehicle. It works through an OBD-II adapter and the device's GPS/sensors. This version of the manual focuses on modern mobile platforms: Android and iOS, including CarPlay.

Screenshots were captured on an Android emulator with demo data. Readings and system controls may differ on your device.

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How This Documentation Is Organized

This manual now serves as an **overview layer**: it explains the basic setup flow and the purpose of the main screens.

More detailed technical material has been moved into separate knowledge base articles:

- Connection, profiles, compatibility: Ready-made vehicle profiles, Problematic ELM327 adapters, Diagnostics for ABS/SRS and specific ECUs.
- Consumption and calibration: Fuel calculation methods and coefficients, Fuel consumption: questions and answers, Speed discrepancy, Voltage correction.
- Screens and interface setup: Main Screen Settings, Layouts, Screens, and DashKits, Layout language specification, Dynamic expressions, Dynamic expressions: core syntax.
- Service and reports: Service intervals and reminders, Trip statistics and online analytics.
- Data and support: Backups and settings migration, How to report a problem, Licensing.
- Android: Home-screen widgets.
- iOS/CarPlay: Automated launch via Shortcuts.

If you are setting up HobDrive for the first time, read this manual top to bottom and use the linked articles for deeper detail where needed.

What HobDrive Does Today

HobDrive combines the following in one app:

- Real-time display of current vehicle and trip parameters.
- ECU diagnostics, reading and clearing fault codes.

- Fuel consumption, refueling, cost of ownership, and driving efficiency analysis.
- Service intervals, maintenance records, and local reminders.
- Customizable screens, user sensors, themes, and DashKits.
- Data backups and background cloud uploads.
- Extra modes: HUD, GPS graphs, acceleration screen, and engine hours.

Supported Platforms

- Android: widgets, advanced interface settings, cloud sync, and DashKits.
- iOS: Bluetooth LE and Wi-Fi adapter support, updated screens, and CarPlay mirroring.

Note: older Windows/WinCE/WinMobile platforms and their related instructions are no longer supported and are not covered in this manual.

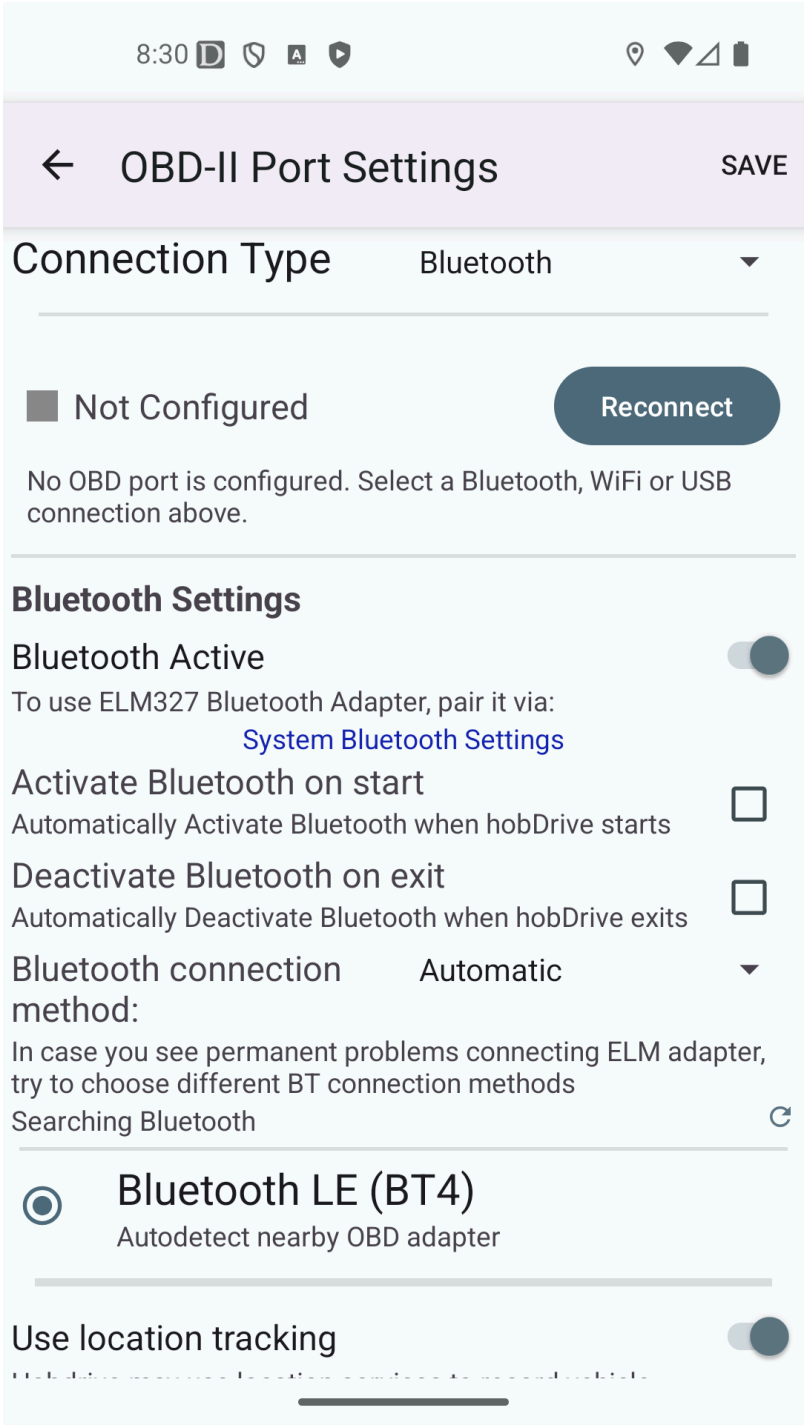
Quick Start

1. Connect the ELM327 Adapter

Open: **Screens -> Settings -> ELM Connection Parameters**.

Connection options:

- **Bluetooth**: select the adapter from the list, or choose BTLE4. On Android/iOS the adapter usually needs to be paired in the system settings first.
- **Wi-Fi**: connect to the adapter's Wi-Fi network and enter an address in the form `ip:port`.
- **USB** (Android, if supported by the device and adapter): select the detected USB adapter.
- **Simulator**: for GPS-based testing without a real vehicle.



ELM327 connection settings on Android (Bluetooth mode).

More about adapter quality and compatibility: Problematic ELM327 adapters.

2. Check the Connection Status

In the status indicator:

- **Green**: connection to the adapter and vehicle is active.
- **Yellow**: the adapter is found and responding, but there is a problem communicating with the vehicle.
- **Red**: problem communicating with the adapter.

This makes troubleshooting faster because you can see whether the issue is on the adapter side or the vehicle side.

3. Select the Vehicle Profile

Open: **Settings -> Vehicle Parameters**.

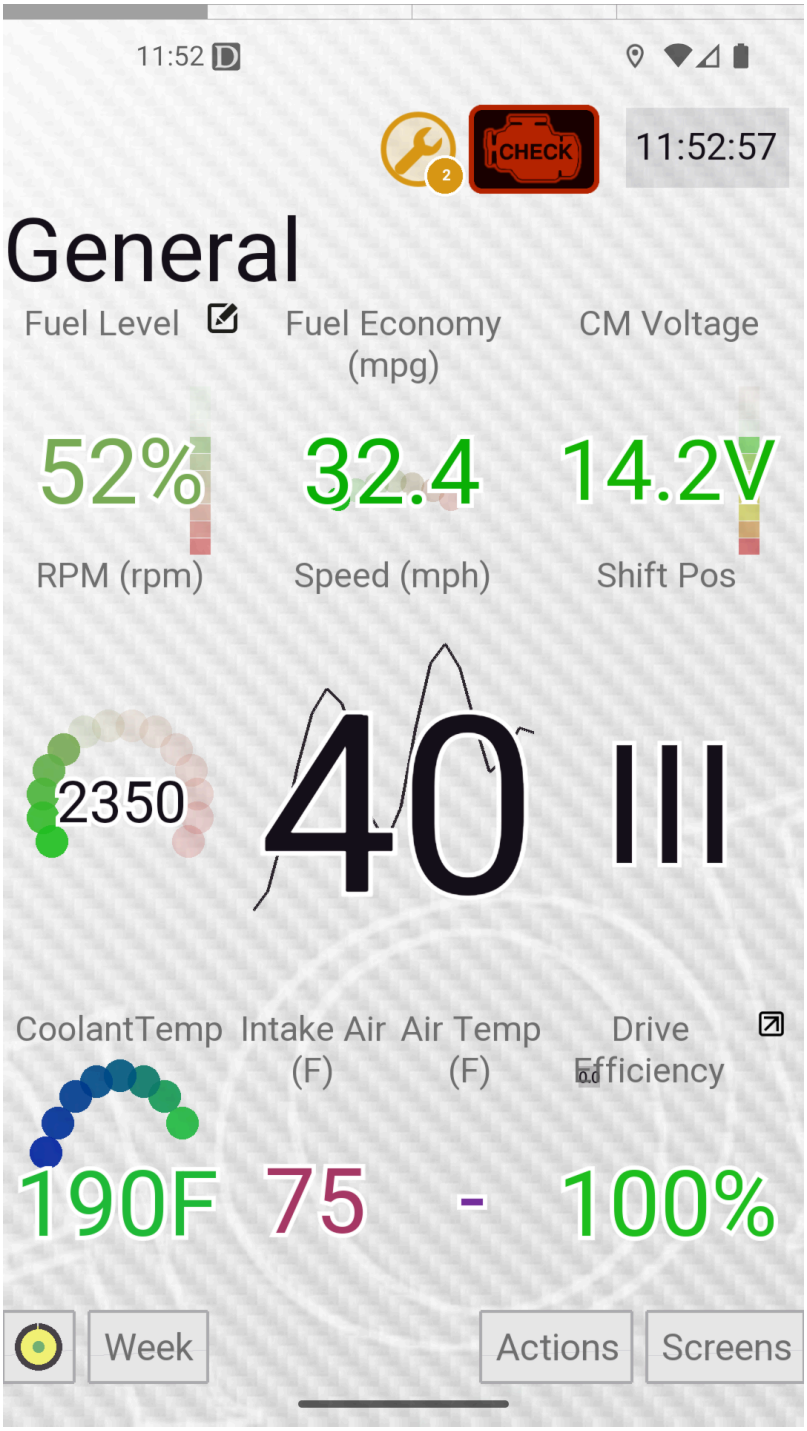
Recommended order:

1. Try **Load from Template**.
2. If no template exists, configure the profile manually.
3. When the setup works, share the profile through **Share**.

More: Ready-made vehicle profiles, Diagnostics for ABS/SRS and specific ECUs.

Interface Basics

HobDrive has a set of main screens and additional screens.



Navigation works through:

- swipes between screens,
- the top quick navigation bar,
- the **Screens** menu.

A long press on a sensor opens extended information about its calculation and source data.

The **Screens** menu gives access to additional controls:

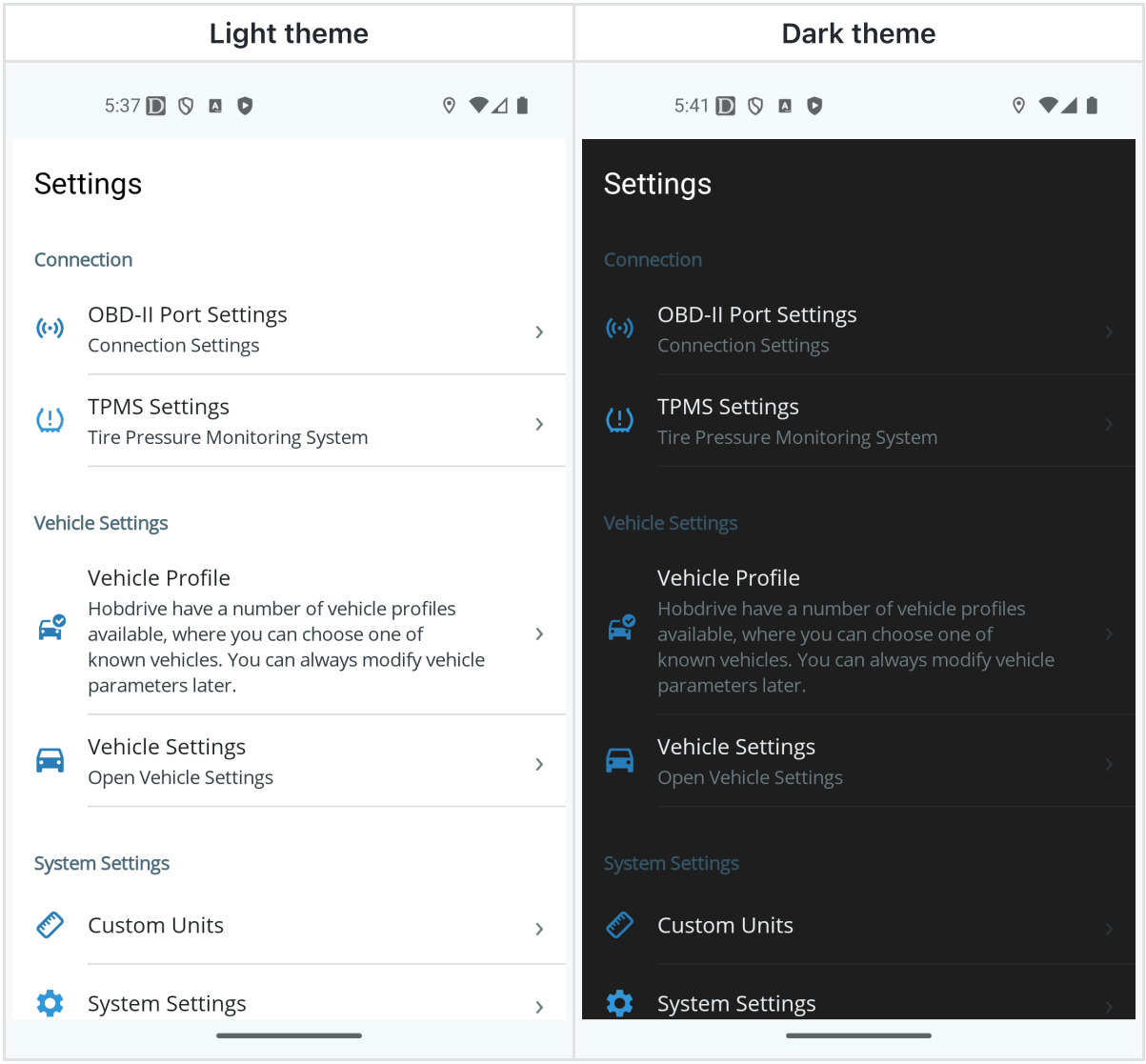
- Temporarily hide the app (Hide)
- Exit the app
- Activate Settings tab

- Choose and activate additional screens

Settings Screen

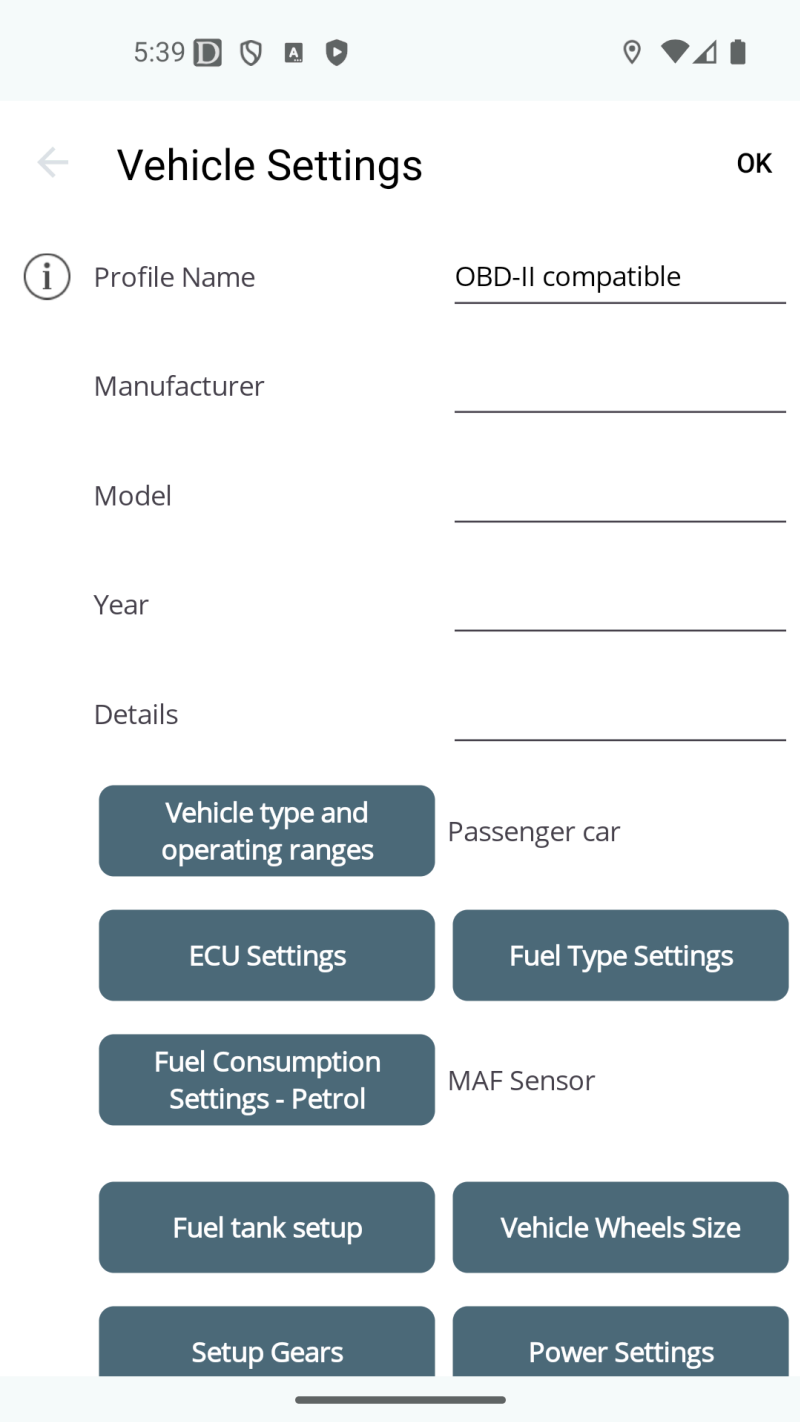
Key sections:

- ELM connection parameters
- Vehicle parameters
- System settings
- Sensor appearance settings
- Network / Appearance / Language / Units / About



Vehicle Parameters

Open **Settings → Vehicle Settings** to edit the active profile. If a ready-made template exists for your model, first open the adjacent **Vehicle Profile → Load Template** entry. You can also switch, copy, delete, or share profiles there. Those actions are in profile management, not on the vehicle settings screen.



Detailed article on profiles and templates: Ready-made vehicle profiles.

Main profile screen. Profile Name, **Manufacturer**, **Model**, **Year**, and **Details** identify the vehicle. Below them are buttons for the nested settings and fields for **Weight**, **Speed correction coeff**, **Odometer correction coeff**, **Maximum Idle Speed**, **Warm Engine Temperature**, **Time gap to autoreset trip**, **Fuel Economy Idle Speed**, and **Reset Fuel Economy On Idle**. Speed correction also affects calculated distance; odometer correction adjusts distance further without changing displayed speed. The trip interval is in seconds: if the car reconnects before it expires, Auto Trip continues. The last two settings control instant and short-term fuel economy around stops.

Nested screens:

- **Vehicle type and operating ranges**: choose Passenger car, Truck, Motorcycle, ATV / UTV, or Other independently of the ECU type. The selection fills initial ranges; you can then change each range separately. This screen contains electrical system voltage, maximum RPM scale, fuel consumption range, coolant/engine oil/transmission oil warning temperatures, maximum LTFT, and normal/critical TPMS pressure ranges. Choose the TPMS range using the vehicle placard or manual.
- **ECU Settings**: ECU manufacturer filter, ECU type (such as standard OBD-II or a specific control unit profile), ELM initialization string, and available additional sensor sets. ECU type controls how the vehicle is queried and which sensors are available; the manufacturer filter only narrows the list. Standard OBD-II vehicles usually need no custom initialization string.
- **Fuel Type Settings**: petrol / diesel / gas / petrol+gas / diesel+gas / petrol+electricity / electricity configuration and primary tank capacity. Dual-fuel configurations also show a secondary tank capacity and fuel-switch controls, primarily for gas systems: automatic, ECU based, temperature and RPM, voltage, or a custom signal. When changing to dual-fuel accounting, the app asks how to migrate accumulated data.
- **Fuel Consumption Settings**: a separate form for primary fuel and, in a dual-fuel profile, secondary fuel. Available methods are MAF, MAP, injector pulse, cyclomatic consumption, engine load, and built-in consumption sensor. The form reports whether the selected method is available with the current connection, shows current fuel use per hour, and offers **Apply and Check data**. Engine displacement, cylinder count, AFR, VE, injector flow, consumption coefficients, and fuel-cutoff, LTFT, and Lambda corrections are here; the applicable fields depend on the method. Fuel calculation methods and coefficients · Consumption principles.
- **Fuel tank setup**: tank capacity and the volume already consumed from the tank. Dual-fuel profiles have the same fields for the secondary tank. These values initialize the estimated fuel remaining.
- **Vehicle Wheels Size**: factory and installed rim/tire sizes, a factory-tire switch, speed correction coefficient, and an action to calculate that coefficient from wheel sizes.
- **Setup Gears**: a template and gear ratios for the final drive and individual gears. These support gear detection from RPM and speed.
- **Power Settings**: vehicle weight, drag coefficient and frontal area, rolling resistance, road angle, transmission loss, maximum speed, and rated engine power; the form also shows calculated power.

If statistics consistently disagree with consumption calculated from refueling, align distance first and then tune the fuel coefficients. See Speed discrepancy.

Sensor and Screen Settings

Current capabilities include:

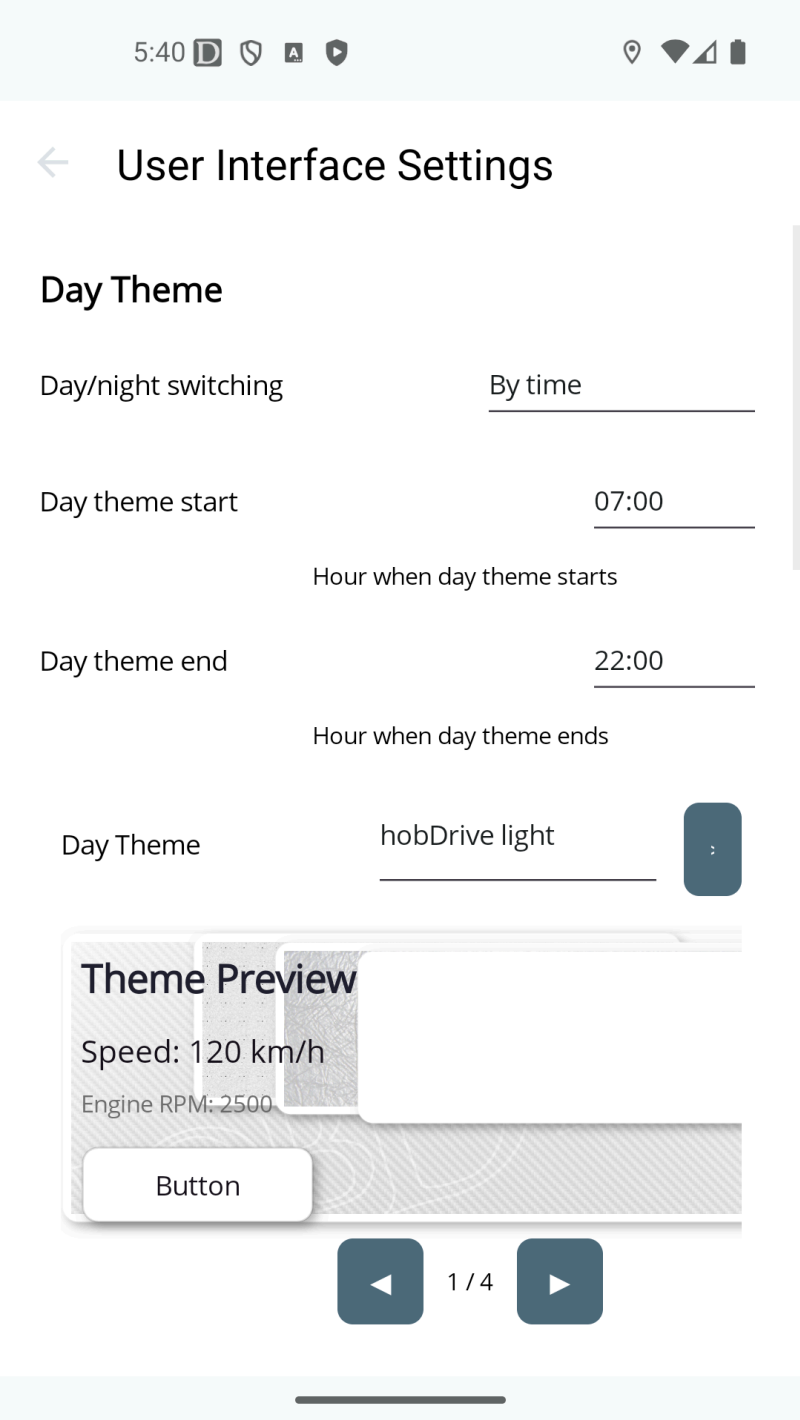
- A convenient sensor picker with search and current selection display.
- Setting the number of sensors and display parameters per screen.
- Reordering the main screens and selecting screens that should always stay active.
- Setting the gear indicator style, either Roman or Arabic numerals.
- Showing or hiding date and time.

Details about screen order, pinning, hiding, personal options, and the custom screen: Main Screen Settings.

Appearance

Supported options include:

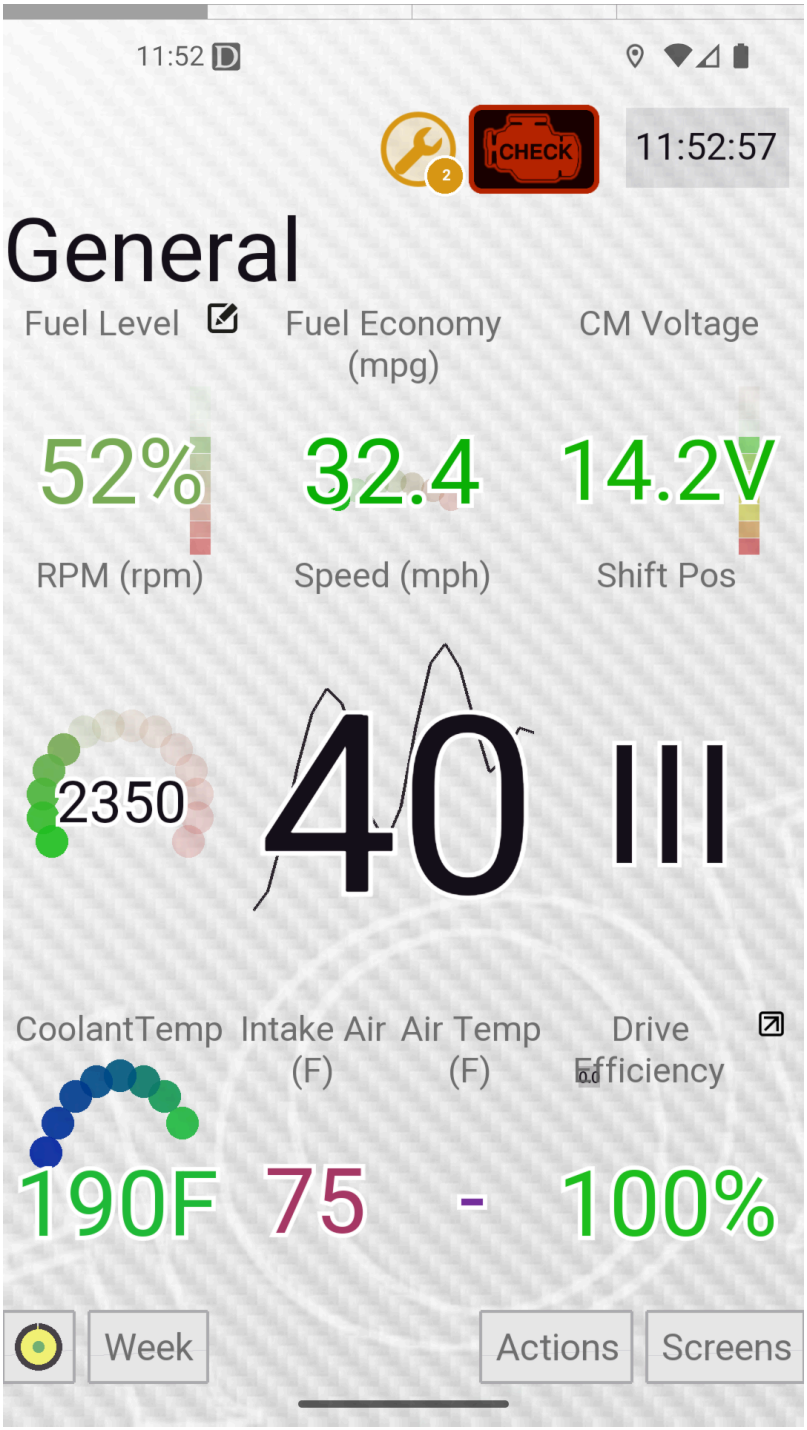
- light and dark themes,
- multiple background images in a single theme,
- advanced readability controls such as text/value outlines that can be turned off.



Main and Extra Screens

Main Readings

This is the screen with current vehicle state while driving. All sensors are read sequentially, and reading speed depends on the performance of the ELM adapter and device. A 1-2 second delay in readings may be normal.



Main sensors:

- **Speed**: the current vehicle speed. Readings come from vehicle sensors and should match the speedometer. They may differ from GPS speed. For correction, see the calibration section.

- **Acceleration**: instantaneous acceleration in meters per second squared, showing acceleration or deceleration intensity.
- **RPM**: current engine speed.
- **Fuel level**: estimated fuel level in the tank. Requires initial calibration; see the Fuel Details screen.
- **Fuel economy**: fuel economy in liters per 100 km for the current trip. This is the main vehicle efficiency metric.
- **Voltage**: the vehicle electrical system voltage. Can be used to judge alternator performance or battery discharge.
- **Antifreeze temperature**: current coolant and engine temperature. This is the main parameter for judging engine warm-up.
- **Intake temperature**: air temperature at the intake. Usually close to ambient temperature.
- **Ambient temperature**: outside air temperature. May be unavailable on some vehicles.

All sensor values are transmitted by the vehicle ECU and may not match real-world readings. Different sensors have different update rates. Sensors with background graphs show the current minimum and maximum observed values.

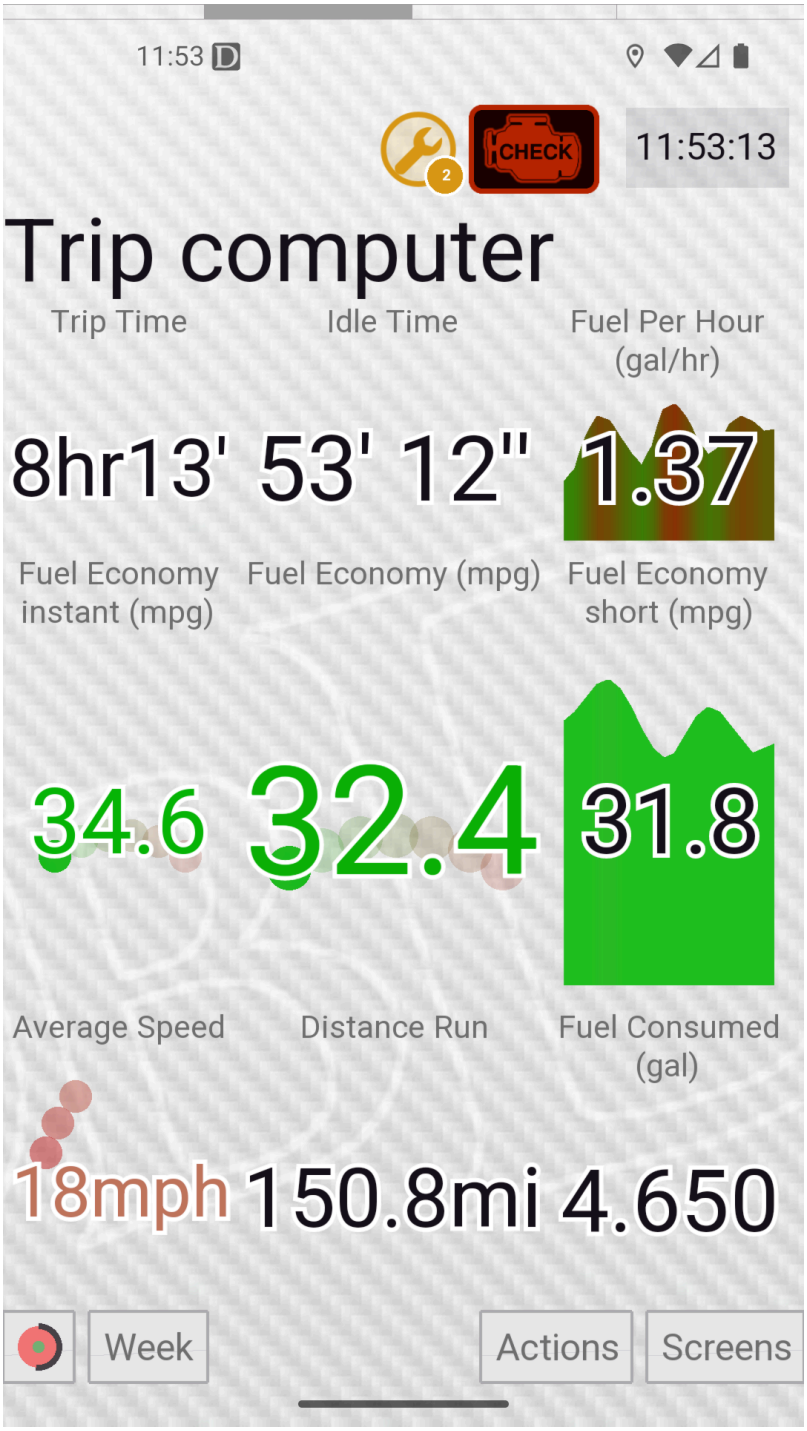
Status panel controls:

Tapping the status popup panel in the lower-left corner shows:

- Detailed OBD2 and GPS connection status.
- A **Reconnect** button for forcing a new connection attempt.
- A **Fast Reading Mode** option that disables calculated data and focuses on reading visible data at maximum speed, useful for diagnostics.

Trip Computer

This screen shows the main values for the current trip or selected time interval, letting you evaluate both overall efficiency and instantaneous consumption values.



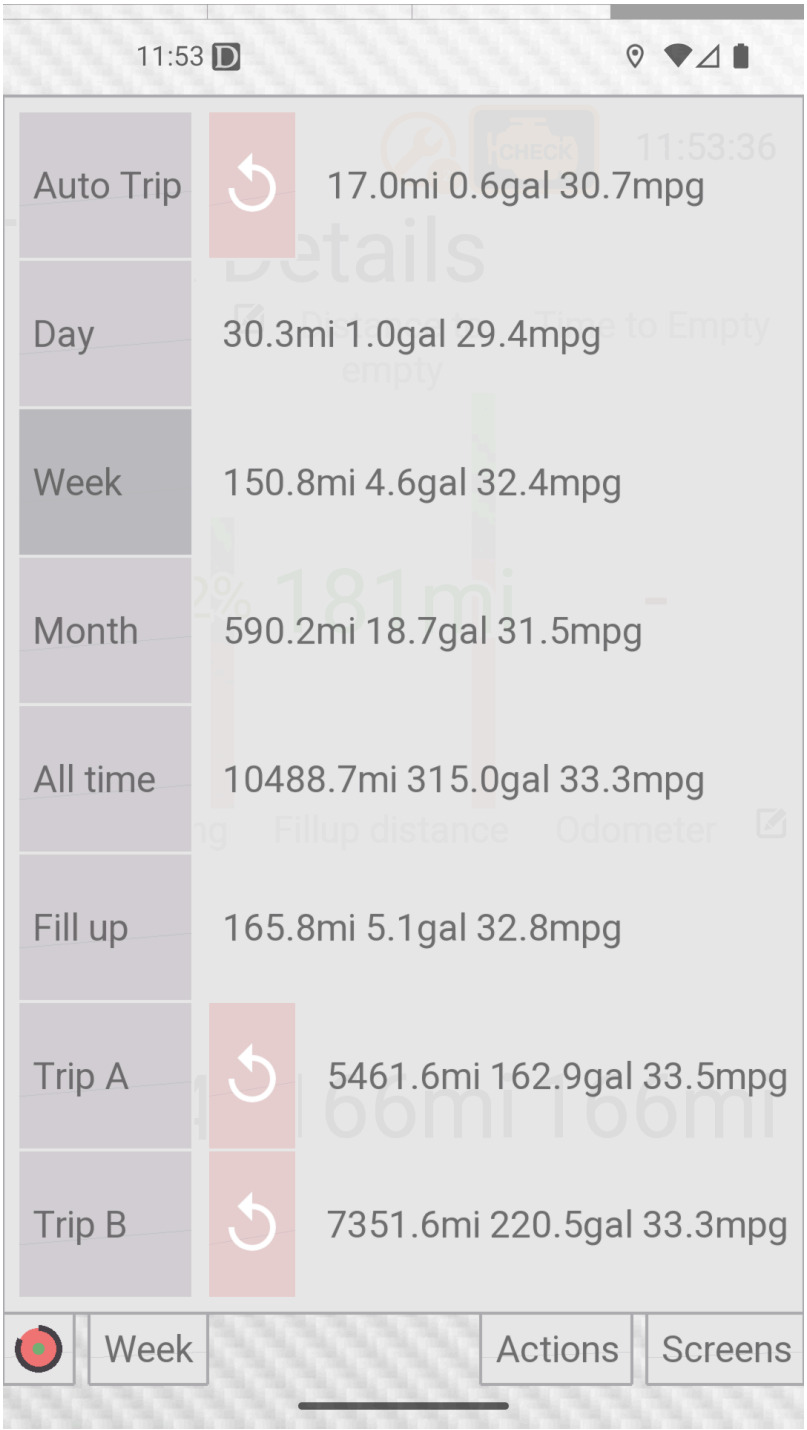
Main metrics:

- **Trip Time**: time spent in the vehicle with ignition on.
- **Idle Time**: time spent in traffic, at lights, or stopped with the engine running. Movement under 5 km/h is also treated as idling.
- **Fuel per hour**: instantaneous fuel consumption per unit of time, in liters. Typical idle values are 0.5-1.5 liters per hour. This helps monitor engine state and the effect of extra loads such as air conditioning.
- **Instant fuel economy**: fuel economy for the last few seconds. Useful for observing efficiency changes while driving.
- **Fuel economy**: average consumption for the current trip or selected interval, in liters per 100 km. This is the main measure of overall vehicle efficiency.

- **Short-term fuel economy**: fuel economy over the last few minutes. Useful for short-term driving analysis.
- **Distance run**: total distance for the trip. See the calibration section if it differs from the dashboard odometer.
- **Fuel consumed**: total fuel used during the selected interval, in liters.

Time interval selection:

Tapping the **Trip** button shows available tracking intervals. When a new interval is selected, all values update to reflect stored data for that interval.

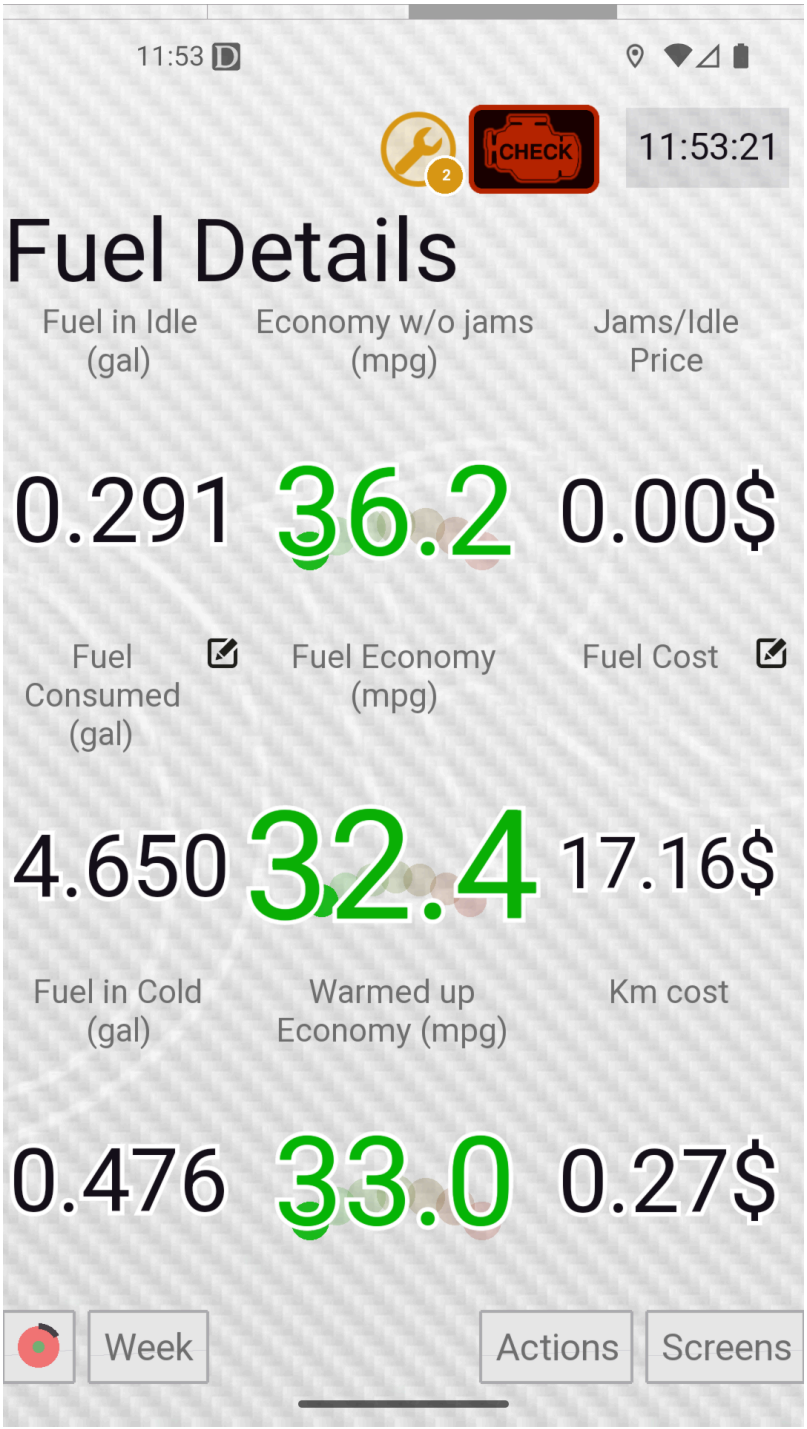


- **Auto Trip**: current trip. Selected automatically once the minimum ignition-off/ignition-on interval is reached, 10 minutes by default.

- **Day**: aggregated data for today. Reset at midnight.
- **Week**: aggregated data for the current week. Reset at Sunday midnight.
- **Month**: aggregated data for the current month.
- **All time**: all aggregated data.
- **Fill up**: data for the current fueling period. HobDrive resets this when you enter a new fueling record.
- **Trip A, Trip B**: data for two manually managed trips.

Manual reset is possible for **Auto Trip** and **Trip A / Trip B** modes.

Fuel Consumption Details

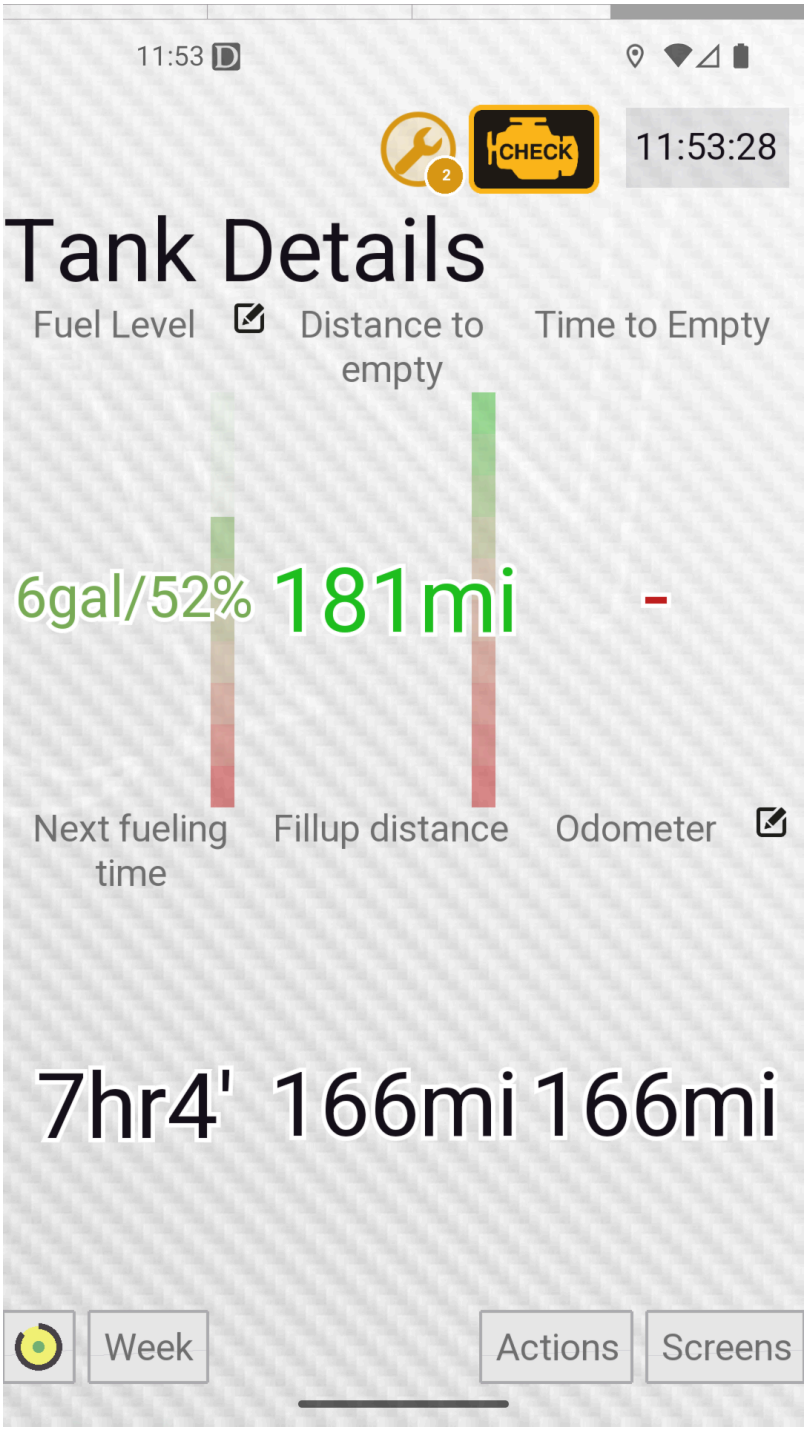


This screen provides detailed information about fuel consumption:

- Fuel consumed while idling (in traffic, at lights)
- Fuel economy excluding idling
- Cost of idle time
- Cost of fuel consumed for the trip
- Fuel consumed during engine warm-up to 60°C
- Fuel consumed on a warmed-up engine
- Fuel cost per kilometer

Sensors highlighted in green can be fine-tuned for higher accuracy. Tapping the price sensor opens a screen where you can set the current fuel price per liter and currency.

Fuel Details



This screen shows detailed information about fuel in the tank and tank calibration.

The current **estimated fuel level** and **estimated fuel volume** in the tank are calculated from fueling records and consumption data.

Tapping one of the fuel level sensors opens the tank calibration dialog. On first use you must enter your tank volume and an approximate amount of fuel already consumed.

HobDrive then automatically decreases the estimated fuel amount. To keep it accurate, you need to enter fueling records regularly.

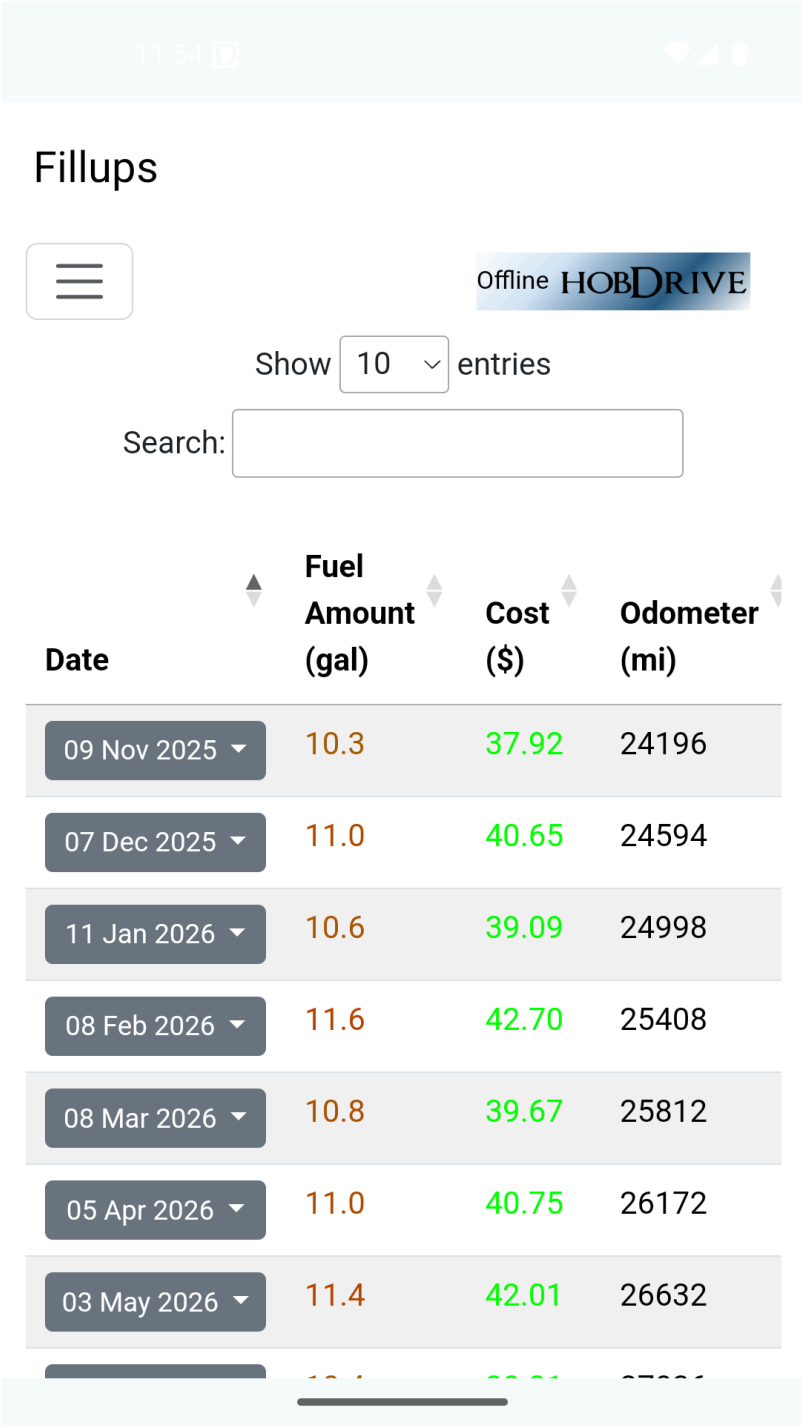
HobDrive does not use the raw ECU sensor value directly. Instead, it shows the calculated value based on entered fuel data and consumption.

Additional values calculated on this screen include:

- **Mileage on remaining fuel**
- **Continuous driving time on remaining fuel**
- **Next fueling**: approximate time to next refueling based on weekly average consumption
- **Maximum temperature and speed**: the maximum observed value
- **Average speed**: calculated for the current selected interval including all idle time

Some cars transmit the real fuel level from the ECU. In HobDrive this sensor is called **ECUFuelLevel**. HobDrive displays the calculated value instead, based on entered data and fuel consumption.

Refueling and Events



This screen is used to analyze refueling and event data saved by HobDrive.

The table contains the following fields:

- **Category**: event category. Tapping a category filters displayed records.
- **Cost**: amount spent on the event or refueling.
- **Odometer**: odometer reading at the time of entry.
- **Fueled**: for refueling records — amount of fuel added in liters.
- **Instant consumption, total consumption**: two calculated fields showing estimated fuel economy. Instant — consumption since the last refueling (accurate for full-tank refuels). Total — average consumption across all previous refuelings.

- **Tags, notes** — arbitrary data you can add to the record.
- **Date** — event date.

The last row shows summary totals: total distance, total cost, average consumption.

Sorting, filtering, and record editing are available.

Keeping records:

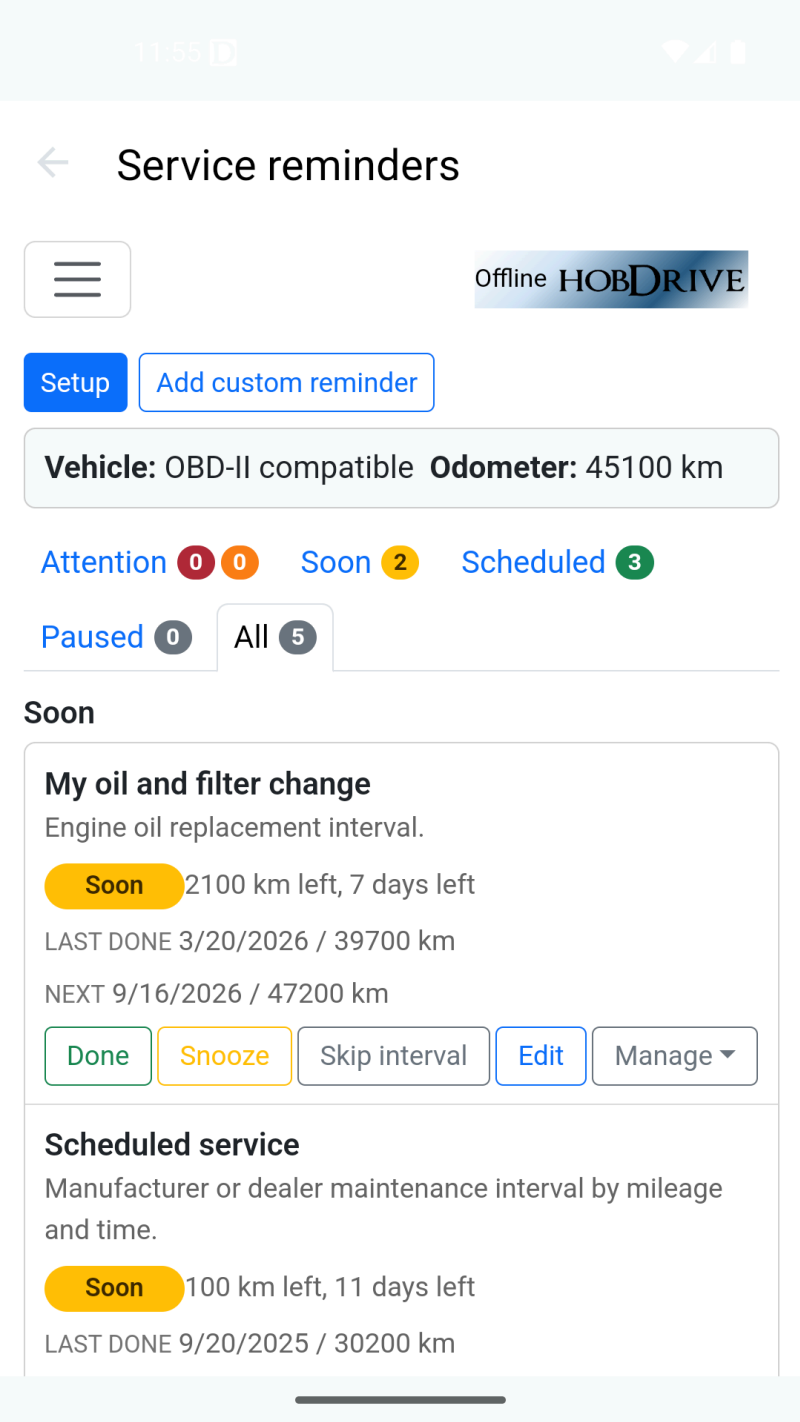
Data is entered through the **Actions** menu:

- **New refuel**: at each refuel, select this action and enter fuel volume, cost, odometer reading, and notes. HobDrive can compare its distance estimate with your actual odometer. You can choose how to correct it: automatically, manually in a dialog, or only fix the odometer without adjusting consumption.
- **New record**: enter an arbitrary vehicle maintenance record.
- **Missed trip**: allows correction of calculated data by adding an unrecorded trip (for example, if you forgot to start HobDrive). Enter your current odometer reading, and HobDrive will estimate fuel consumed (you can adjust). On vehicles with ECU fuel level sensors these values are entered automatically.

Using refueling records, HobDrive lets you estimate fuel costs, total cost of ownership, and cost per kilometer.

Service Reminders

The separate **Service reminders** screen tracks maintenance by date, odometer, or both. You can start from presets or create custom intervals, record completed work, snooze or skip a cycle, and receive local notifications when service is due.



Step-by-step instructions: Service Intervals and Reminders.

GPS and Motion

The GPS screen has graphs and improved direction display.

Acceleration Screen: separate screen showing acceleration data with analysis from the device's G-sensor and direction determination.

Power Screen: calculation improved based on current parameters.

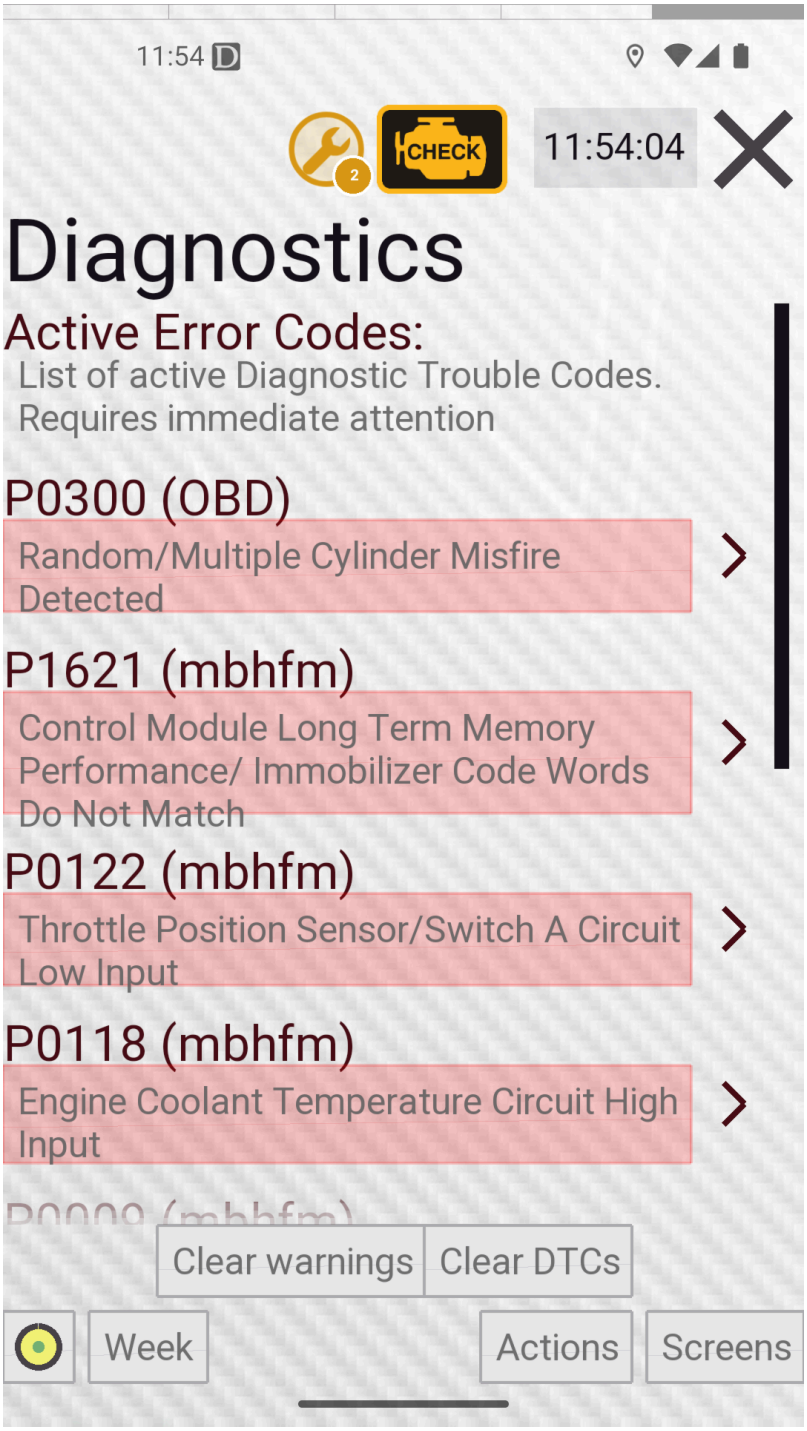
Engine Hours

The Engine Hours screen shows the total engine running time and is useful for maintenance planning (every N engine hours).

Diagnostics and Extra Screens

In addition to main screens, HobDrive provides extended diagnostic information.

Diagnostics Screen: screen for diagnosing various warnings, engine errors, and their descriptions.



When activated, fault codes are read:

- **Active codes**: require immediate attention and diagnosis.

- **Pending codes**: potential errors in the future.

The **Clear Errors** button allows clearing codes if necessary. *Note*: clearing does not solve the underlying problem. Freeze-frame codes can be useful for diagnostics at a service center.

Customizing Sensor Appearance

Activation of customization mode happens through **Screens → Settings → Sensor Appearance Settings**.

When this mode is active, tapping any sensor on any screen opens a configuration dialog.

In the dialog you can configure:

- widget type (text, linear indicator, circular indicator, graph)
- display range
- desired colors
- other visual parameters.

Each parameter has a description (you can tap the information icon for details).

Advanced customization via layout files: Layouts, Screens, and DashKits, Layout language specification, Dynamic expressions.

Fuel Trim Screen:

Fuel trims STFT (short-term) and LTFT (long-term) are ECU parameters that determine how efficiently the vehicle uses the fuel-air mixture.

On older or dirty engines their absolute value can be large (20% or more) and may trigger error codes. Fuel trims within a few percent indicate normal engine operation.

Lambda Sensors Screen:

Shows readings from oxygen sensors (not all four may be present depending on the vehicle).

Extra Sensors, Toyota Sensors, Sensor List Screens:

Additional sensors, mostly useful for professional diagnostics.

The sensor list screen lets you select any sensor and start reading its value.

HUD Mode

HUD mode hides unnecessary interface elements and prepares the image for projection onto the windshield. Use it primarily as a supplementary mode that doesn't distract from driving.

Data Management, Backups, and Cloud

In the **Data Management** dialog you can access:

- backup creation
- restoration
- background cloud upload
- upload frequency settings
- deletion of old data

Recommendation: enable regular backups, especially before switching devices or testing new DashKits.

For details on files, migration, and restoration: How to migrate settings or make a backup.

For setup, comparison analytics, and fueling/expense charts: Trip Statistics and Online Analytics.

DashKits, Themes, and Extensibility

HobDrive supports customizing appearance and screen logic through DashKits.

What you can do:

- connect ready-made panels and themes
- select skins in the DashKits dialog
- use multiple isolated sets of custom overrides
- add your own screens and styling for specific scenarios

For advanced users additional layout capabilities are available: conditional output (`if`), sensor filters, element visibility control, graphic decorators, and rendering stage parameters.

For advanced customization see:

- Layouts, Screens, and DashKits
- HobDrive Layout Language specification
- Dynamic expressions in configuration files
- Dynamic expressions: core syntax
- ECUXML format specification

Android: Widgets

Android supports widgets that display in the app style and are customizable for your choice of sensors/parameters. This is convenient for quick viewing of key data without opening the app.

To add, configure, resize, or troubleshoot one, see HobDrive Widgets for Android.

iOS and CarPlay

iOS is in full active development in HobDrive:

- Bluetooth LE and Wi-Fi adapter support
- connection stability improvements
- updated screens and system scenario handling
- CarPlay mirroring support

Recommendation for iOS: after system updates recheck Bluetooth/location permissions and adapter availability in system settings.

Step-by-step instructions for CarPlay auto-launch: Automated launch via Shortcuts.

Calibration and Calculation Accuracy

Basic Calibration Algorithm

1. Enter at least 2-3 refuelings with accurate liters and odometer readings.
2. On the “All Refuelings” screen see the calculated “tank-based” consumption.
3. Roughly compare this value with the consumption shown by HobDrive on the “Trip Computer” screen for a long interval (e.g., “Month” or “All time”).
4. Adjust calibration parameters of the chosen method (see the coefficients section below).

This manual covers only the basic calibration algorithm. Full technical details with formulas, AFR/VE, MAP/MAF/Injector/EngineLoad coefficients, and calculation examples are in separate articles:

- Fuel calculation methods and calibration coefficients
- Fuel consumption: principles and common questions
- Speed discrepancy

Important Number Format

For decimal parameters use a period as the decimal separator.

Common Problems

No Connection to Vehicle

- Check that the adapter is visible to the system and the correct connection type is selected.
- Check the status color: red (adapter) or yellow (vehicle).
- For unreliable adapters increase the ELM communication delay.

Detailed analysis of low-quality adapters: Problematic ELM327 adapters.

Incorrect Consumption/Distance

- Check the fuel calculation method.
- Check the speed and odometer correction coefficients.
- Compare statistics with actual refuelings.

For details see: Fuel calculation methods, Fuel consumption: questions and answers, Speed discrepancy.

Interface Looks Wrong After Update

- Check the selected theme/skin/DashKit.
- Disable the problematic custom set and check behavior on the standard theme.

If the problem persists, file a report: How to report a problem.

Section for Future Extensions

This section is reserved for manual development. Recommended future chapters:

- Detailed guide to creating a custom DashKit with examples.
- Catalog of recommended custom screens by scenario (city, highway, diagnostics).
- Separate best practices for CarPlay.

Important Safety Warning

A vehicle is a source of increased danger. Do not configure complex parameters or analyze screens in detail while driving. Always do configuration at rest.