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› [WOYO CTB007 PRO 12V/24V OBD2 Breakout Box User Manual](#)

WOYO CTB007 PRO

WOYO CTB007 PRO 12V/24V OBD2 Breakout Box User Manual

Model: CTB007 PRO

1. INTRODUCTION

The WOYO CTB007 PRO is a professional diagnostic tool designed for automotive technicians and enthusiasts. It functions as an OBD2 breakout box, CAN tester, and ECU testing tool, supporting both 12V and 24V vehicle systems. This manual provides detailed instructions for its setup, operation, and maintenance to ensure safe and effective use.



Figure 1: WOYO CTB007 PRO OBD2 Breakout Box and included accessories.

2. PRODUCT OVERVIEW

2.1 Key Features

- Universal Compatibility:** Supports 12V-24V OBD systems for passenger cars and commercial vehicles.
- Real-time OBD-II Pin Voltage Monitoring:** Features a digital LCD display showing true RMS voltage (Vrms) for all 16 OBD-II pins.
- Visual Indicators:** Green background for dynamic signals and status alerts for PIN 4&5 ground (GND) connectivity.
- Built-in 120Ω Resistance Switches:** For HS-CAN (PIN6&14) and OEM/MS-CAN (PIN3&11) to improve signal integrity during bench testing.

- **Voltage Protection:** Audible alarms for high and low voltage conditions on PIN16 (12V and 24V systems) and reverse polarity protection. Maximum load current is 2.0A.
- **ECU Testing Capability:** Provides convenient connectivity for IGN/START activation or external wake-up tools for bench testing ECUs.
- **Battery Replacement Memory Saver:** Maintains vehicle power during battery changes to preserve vehicle settings.
- **Durable Extension Cable:** Includes a 27.5-inch/59-inch OBD2 extension cable made of robust PET braided tube material.

2.2 Package Contents

- WOYO CTB007 PRO Main Device
- Portable Bag
- 5x ECU Breakout Leads
- Banana Pin Connectors

3. SETUP

Before using the WOYO CTB007 PRO, ensure all connections are secure and correct.

1. **Connect to Vehicle:** Plug the OBD2 connector of the CTB007 PRO into the vehicle's OBD2 port. The device will power on automatically.
2. **External Power (Optional):** For extended bench testing or specific scenarios, connect an external 9-32V DC power supply (DC 12V 5.5*2.1mm) to the designated input port on the device.
3. **Connect Diagnostic Tools:** Connect your diagnostic scanner, oscilloscope, or multimeter to the appropriate banana pin sockets on the CTB007 PRO for signal monitoring or ECU communication.



Figure 2: Typical setup for vehicle diagnostics using the CTB007 PRO.

4. OPERATING INSTRUCTIONS

4.1 Real-time OBD-II Pin Voltage Monitoring

The integrated LCD display shows the real-time Vrms (Root Mean Square voltage) of all 16 OBD-II pins. This allows for quick identification of active signals and power supply status.

- **Signal Detection:** If the device detects a pulse or waveform signal on a pin, the corresponding number background color will flash green.
- **Ground (GND) Detection:** The display will show "GND" for pins 4 (Chassis Ground) and 5 (Signal Ground) if they are properly connected. If not normal, it will display "OPEN".



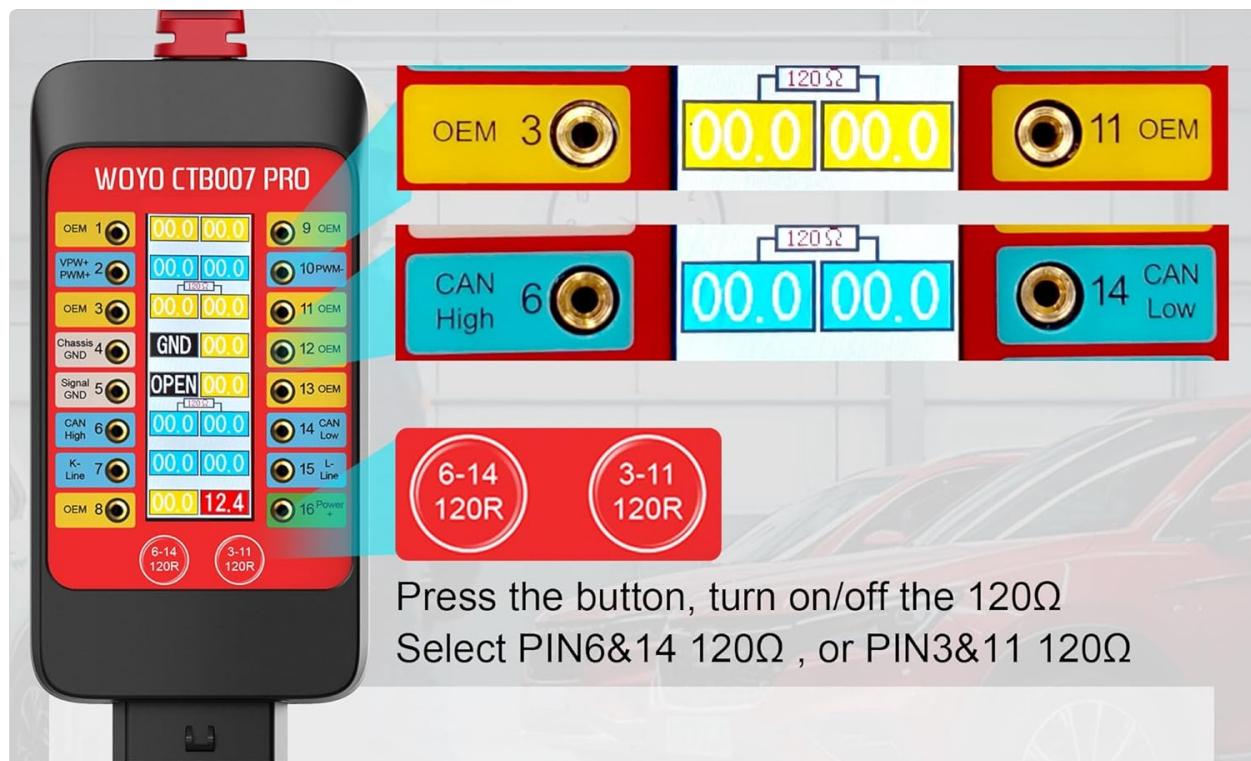
Figure 3: Digital LCD Display showing PIN Vrms and ground detection.

4.2 120Ω CAN Termination Switches

The CTB007 PRO includes built-in 120Ω resistor switches for CAN bus lines. These resistors are crucial for compensating for missing termination in single-ECU or small bench networks, which helps improve signal integrity and reduce reflections.

- **HS-CAN:** Activate the 120Ω resistor for pins 6 and 14 (standard CAN High and CAN Low).
- **OEM/MS-CAN:** Activate the 120Ω resistor for pins 3 and 11 (vehicle-dependent).

Press the corresponding button (6-14 120R or 3-11 120R) on the device to toggle the 120Ω resistance on or off.



Press the button, turn on/off the 120Ω
Select PIN6&14 120Ω , or PIN3&11 120Ω

120 Ω CAN Termination Switches:

Inserts a 120Ω resistor across the CAN pair to compensate for missing termination during single-ECU or small bench networks, improving signal integrity and reducing reflections.

HS-CAN: pins 6 \leftrightarrow 14 (standard).

OEM/MS-CAN (if present): pins 3 \leftrightarrow 11 (vehicle-dependent).

Figure 4: 120 Ω CAN Termination Switches.

4.3 ECU Testing on Bench

The CTB007 PRO facilitates convenient ECU testing outside of the vehicle. It provides necessary connections for IGN/START activation or external wake-up tools, allowing ECUs to be powered and exercised on a workbench.

- Connect the CTB007 PRO to a 9-32V power supply.
- Use the provided ECU breakout leads to connect the ECU to the CTB007 PRO.
- Connect your scanner or code reader programmer to the CTB007 PRO to communicate with the ECU.



Figure 5: Bench testing an ECU with the CTB007 PRO.

4.4 Battery Replacement Memory Saver

The CTB007 PRO can be used to maintain vehicle power during battery changes, preventing the loss of vehicle settings such as radio presets, clock, and ECU learned values.

1. Ensure the car is closed and the ignition key is off.
2. Connect the CTB007 PRO to a 12V/24V power supply (either external DC 12V 5.5*2.1mm or a separate 12V/24V battery connected to PIN 5 & PIN 16).
3. Connect the CTB007 PRO to the vehicle's OBDII plug. This will power the car's systems, saving ECU data.
4. Proceed to safely remove and replace the old battery with a new one.



Figure 6: Battery replacement procedure using CTB007 PRO.

4.5 Voltage Protection and Alarms

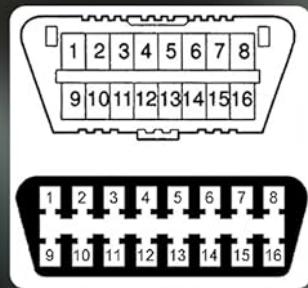
The device provides audible alarms for voltage conditions on PIN 16 (Battery positive +) to alert the user of potential issues:

- **Low-voltage Alarm (slow beep):**
 - 12V systems: < 11.8 V
 - 24V systems: < 23.6 V
- **High-voltage Alarm (fast beep):**
 - 12V systems: > 15.5 V
 - 24V systems: > 31 V

The CTB007 PRO also features reverse polarity protection to prevent damage from incorrect power connections.

4.6 16-Pin Definition

Understanding the OBD-II 16-pin definitions is essential for proper diagnosis and connection of external tools.



16 PIN DEFINITION

1 Self-Define by vehicle manufacturers	9 Self-Define by vehicle manufacturers
2 SAE-J1850 PWM VPW BUS(+)	10 SAE-J1850 PWM BUS(-)
3 Self-Define by vehicle manufacturers	11 Self-Define by vehicle manufacturers
4 Chassis ground (GND)	12 Self-Define by vehicle manufacturers
5 Signal ground (GND)	13 Self-Define by vehicle manufacturers
6 CAN high (ISO 15765-4 and SAE-J2284)	14 CAN Low (ISO 15765-4 and SAE-J2284)
7 K-line (ISO 9141-2 and ISO 14230-4)	15 L-line (ISO 9141-2 and ISO 14230-4)
8 Self-Define by vehicle manufacturers	16 Battery positive (+)

Figure 7: OBD-II 16-Pin Definition.

5. SPECIFICATIONS



Specifications

Input Voltage	9.0-32.0VDC
Maximum Load	2.0A
Resolution	0.1V
Probes Socket	16P*2.0mm
Overload Protection	Yes, PTC Fuse (Self-Healing)
Reverse Polarity Protection	Yes
Protocol Standard	PWM(J1850), VPW(J1850), ISO 9141-2, DIS/ISO 14230-4, CAN(J-2284)
Operating Temperature	-20°C-85°C, Humidity<70%
OBD Cable Length	70cm(27.5inch)/150cm(59inch)

Figure 8: WOYO CTB007 PRO Specifications.

Feature	Specification
Input Voltage	9.0-32.0VDC
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Operating Temperature	-20°C-85°C, Humidity <70%
OBD Cable Length	70cm (27.5inch) / 150cm (59inch)
Item Weight	1.54 pounds

Feature	Specification
Product Dimensions	5.9 x 2.7 x 0.98 inches

6. MAINTENANCE

- Cleaning:** Use a soft, dry cloth to clean the device. Avoid using abrasive cleaners or solvents.
- Storage:** Store the CTB007 PRO in its portable bag in a cool, dry place away from direct sunlight and extreme temperatures.
- Cable Care:** Avoid sharp bends or kinks in the OBD2 extension cable to prevent internal wire damage.
- Inspection:** Periodically inspect the device and cables for any signs of damage or wear. Do not use if damaged.

7. TROUBLESHOOTING

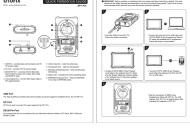
- Device Not Powering On:** Ensure the OBD2 connector is securely plugged into the vehicle's port. Verify the vehicle's battery has sufficient charge. If using external power, check the power supply connection and voltage.
- No Signal Readings:** Confirm the vehicle's ignition is on (if required for communication). Check all connections to diagnostic tools. Ensure the correct pins are selected for monitoring.
- Incorrect Voltage Readings:** Verify the device is correctly set for 12V or 24V systems if applicable (though the CTB007 PRO automatically detects). Ensure good contact with the pins.
- CAN Communication Issues:** If experiencing problems with CAN bus communication, ensure the 120Ω termination switches are correctly set for your specific application (on or off as needed).
- Audible Alarms:** If an alarm sounds, check the voltage on PIN 16 as indicated on the display. Address any low or high voltage conditions in the vehicle's electrical system.

8. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please refer to the contact information provided with your purchase or visit the official WOYO website. Keep your purchase receipt as proof of purchase.

Related Documents - CTB007 PRO

 WOYO SMARTER EASIER Paintless Dent Repair PDR007(Iron) Manual WWW.WOYOSMART.COM	<p><u>WOYO PDR007 (Iron) Paintless Dent Repair Manual</u></p> <p>This manual provides instructions for using the WOYO PDR007 (Iron) Paintless Dent Repair tool. It covers safety precautions, installation, self-check system, standby mode, parameter settings, working status, error instructions, suitable and unsuitable ranges of use, and dent repair methods.</p>
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Preview	<p>VDIAGTOOL V200 Pro User Manual: Automotive Circuit Probe & Breaker Finder Kit</p> <p>Comprehensive user manual for the VDIAGTOOL V200 Pro, an automotive circuit probe and breaker finder kit designed for efficient diagnosis of 6-30V DC vehicle electrical systems. Learn about its features, specifications, operating instructions, and safety guidelines.</p>
	<p>TOPDON Phoenix Smart Product Profile - Advanced Automotive Diagnostics</p> <p>Explore the TOPDON Phoenix Smart, a powerful diagnostic tool with advanced features, comprehensive vehicle coverage, and online programming capabilities. Learn about its specifications, functions, and benefits for automotive repair professionals.</p>
	<p>Инструкция по эксплуатации Noyafa NF-8209 PRO: Сетевой кабельный тестер</p> <p>Руководство пользователя для сетевого кабельного тестера Noyafa NF-8209 PRO. Ознакомьтесь с функциями тестирования кабелей, определения PoE, измерения длины и трассировки сети.</p>
	<p>Autel Diagnostic Testers, ADAS Calibration Systems, and Key Programming Tools Overview</p> <p>A comprehensive overview and comparison of Autel's automotive diagnostic tools, including MaxiSys, MaxiDas, and MaxiCheck series testers, ADAS calibration systems like IA800 and IA900WA, and key programming tools such as IM508, IM608 PRO, and KM100. Details features, specifications, and accessories.</p>
	<p>OTOFIX XP1 Pro Quick Reference Guide</p> <p>A concise guide to the OTOFIX XP1 Pro, detailing its ports, components, and initial connection steps for automotive key programming. Includes safety warnings and port descriptions.</p>