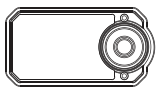
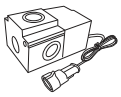
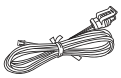
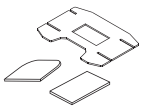
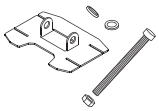
DIGITAL-ELECTRONIC BOOST CONTROLLER II

Ver.0.0.2

SW10141

CONTENTS

Only for reference, it might be different from real parts.

 Main unit of DEBC2	 Solenoid Valve	 Power Cable	 Double-Sided Tapex3	 MAP Sensor	 MAP Sensor Cable Set	 T-fitting	 Rubber tube
 Barb Fittingx2	 Air Filterx2	 Solenoid Extension Harness	 Base Accessories	 Control Box	 AFR Signal Cable	 Manual	

● Please attach the user's manual to the product when transferring to others.

FEATURES

- Equipped with a 2.42" high-resolution OLED display with Waveform, Bar, and Numeric modes for clear boost
- visualization.
- Real-time boost display with auto peak recording to help users understand boost behavior.
- Supports two boost modes, A/B, plus OEM mode for quick switching between street and race settings.
- Built-in lean-burn protection to prevent boost overshoot and engine damage.
- Adjustable WARNING and DANGER boost limits with audible and visual alerts, and automatic boost reduction for
- engine protection.
- Scramble mode available for short-term increased boost, with automatic return to preset levels.
- Supports PSI and Bar (×100 kPa) units for flexible usage.

  Compatible with pneumatic actuators or wastegate boost control systems.

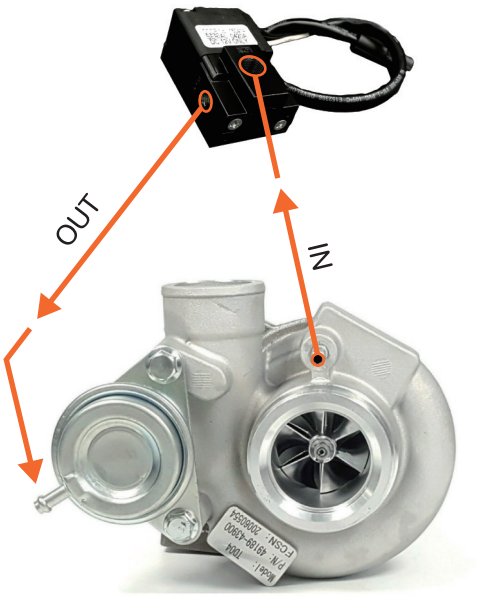
  Uses high-frequency solenoid control and advanced algorithms for faster, smoother, and safer boost response.

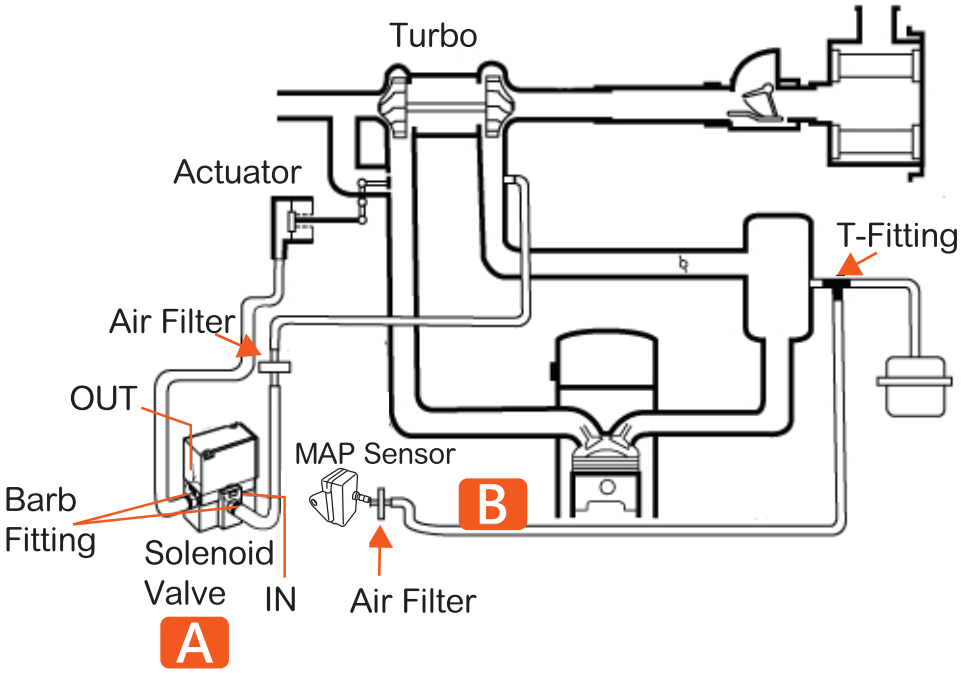
IMPORTANT

- Read the manual carefully before installation to ensure optimal DEBC2 performance.
- This product adjusts turbo boost pressure only and does not modify or compensate fuel delivery. If the engine management system cannot correct fueling automatically, increased boost may cause a lean condition or detonation. Confirm the fuel system status before tuning.
- For significant boost changes, use a programmable ECU with a wideband AFR gauge to adjust fueling and ignition to ensure stable combustion and engine safety.
- Boost control accuracy depends on vacuum hose configuration. Use 4 mm inner-diameter silicone hoses and ensure there are no leaks between the turbo, solenoid valve, and actuator/wastegate.
- The DEBC2 adjustment range is limited by hardware and cannot exceed the original operating limits of the turbocharger or engine.

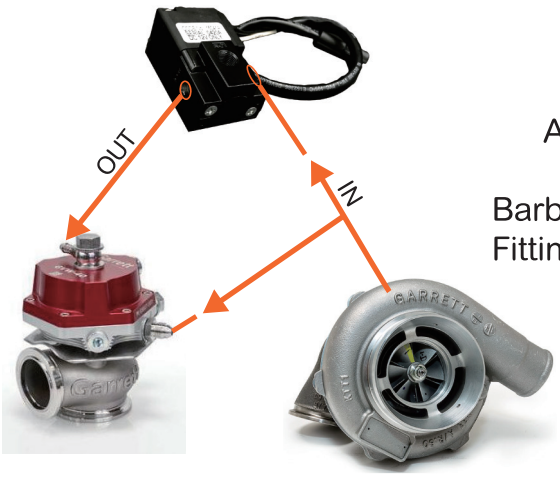
INSTALLATION INSTRUCTION

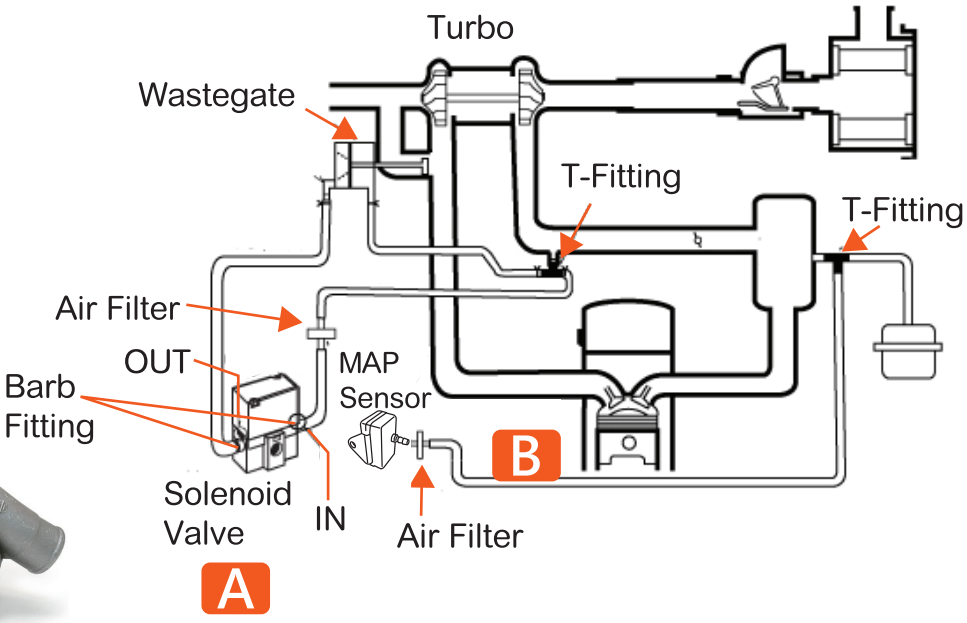
Actuator System



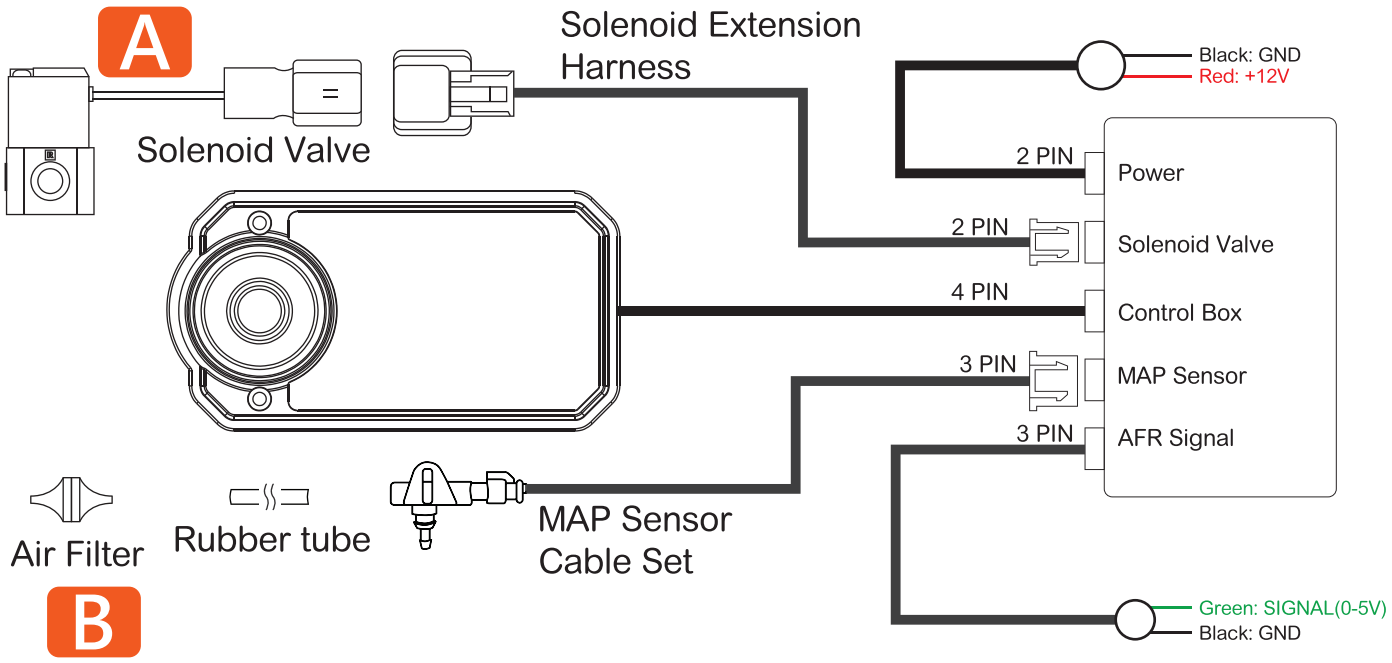


Wastegate System



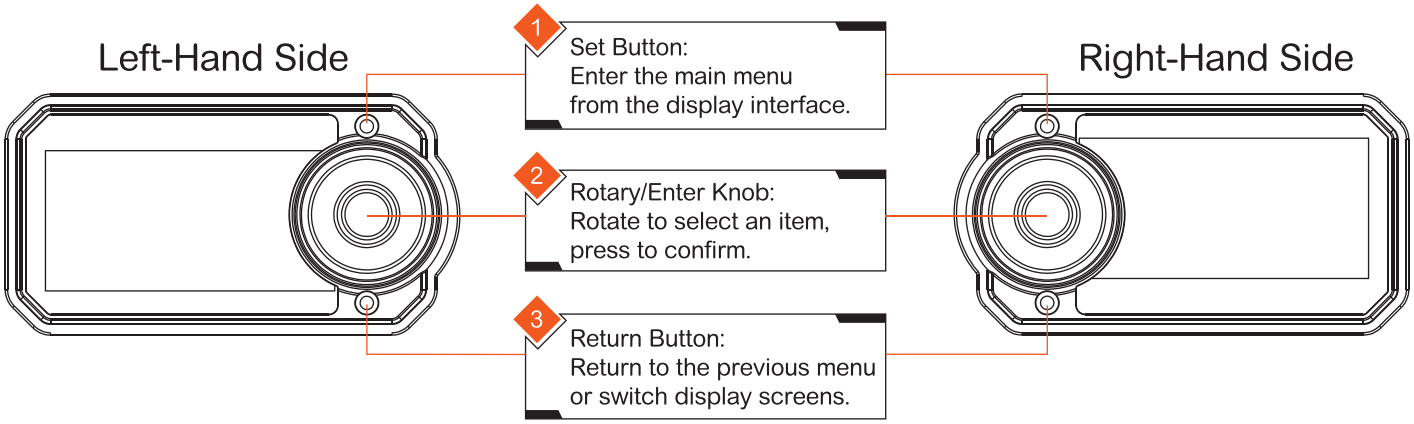


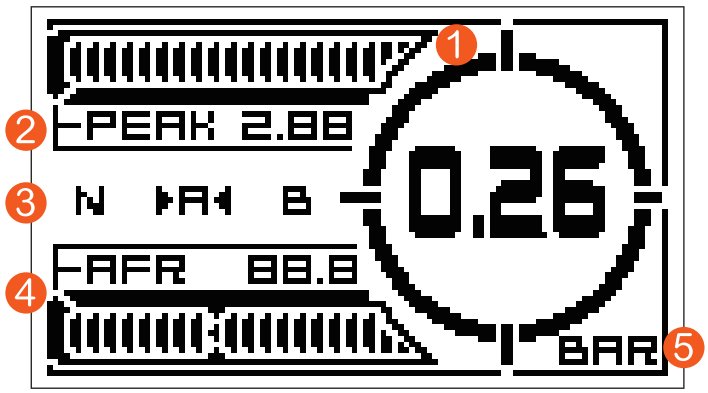
Basic Wiring



A B Please refer to the system diagram above to complete installation.

OPERATION INSTRUCTION

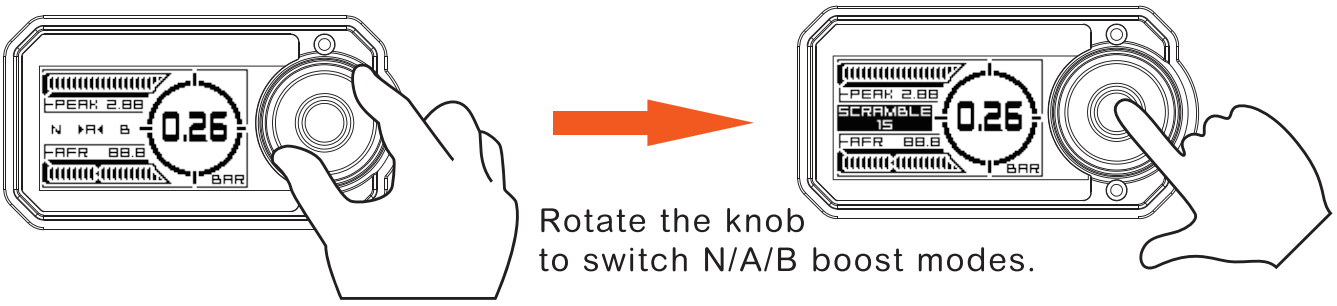




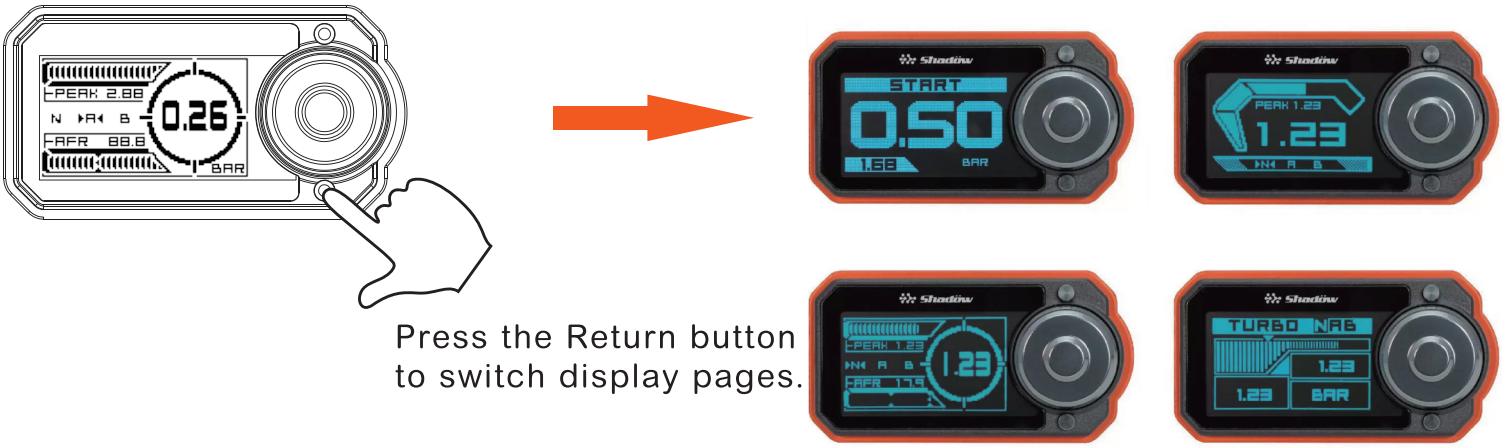
1. Current boost value and bar-graph display.
2. Peak boost record; hold Enter to reset peak value.
3. Current operating mode indicator.
4. Supports input from aftermarket AFR gauges and displays the value on screen in real time.
5. Current pressure unit; can be changed in the Set menu.

Hold Enter to clear the PEAK value.

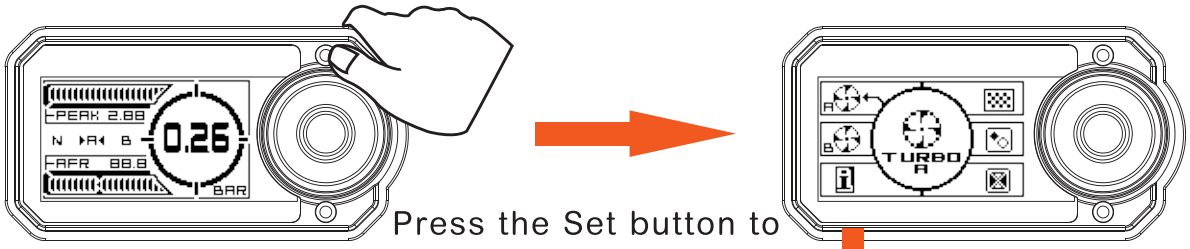
Press Enter briefly to enter Scramble Mode and display the countdown.



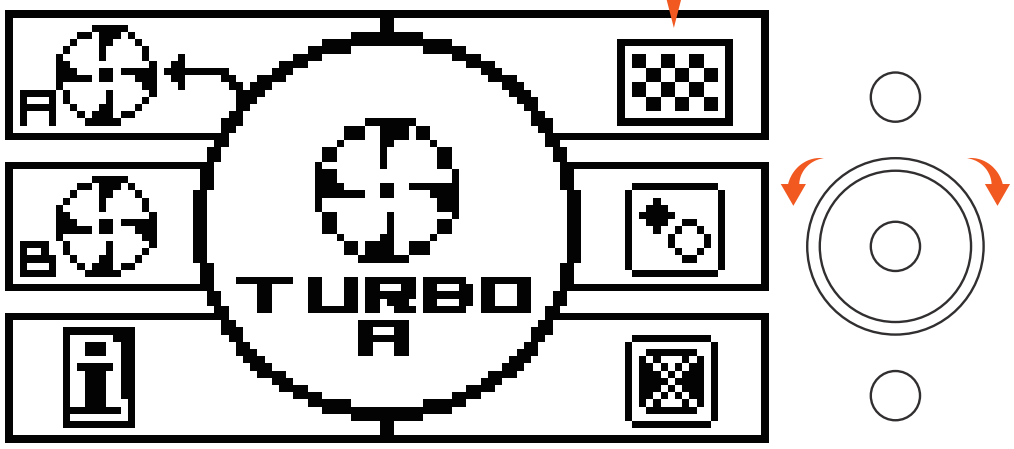
Rotate the knob to switch N/A/B boost modes.



Press the Return button to switch display pages.



Press the Set button to enter the main menu.

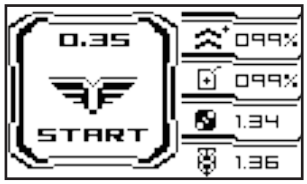


After finishing settings, press Return to exit to the display screen.

Rotate to select an item / press Enter to confirm.

SETTING INSTRUCTION

Boost parameter settings for custom A and B modes.



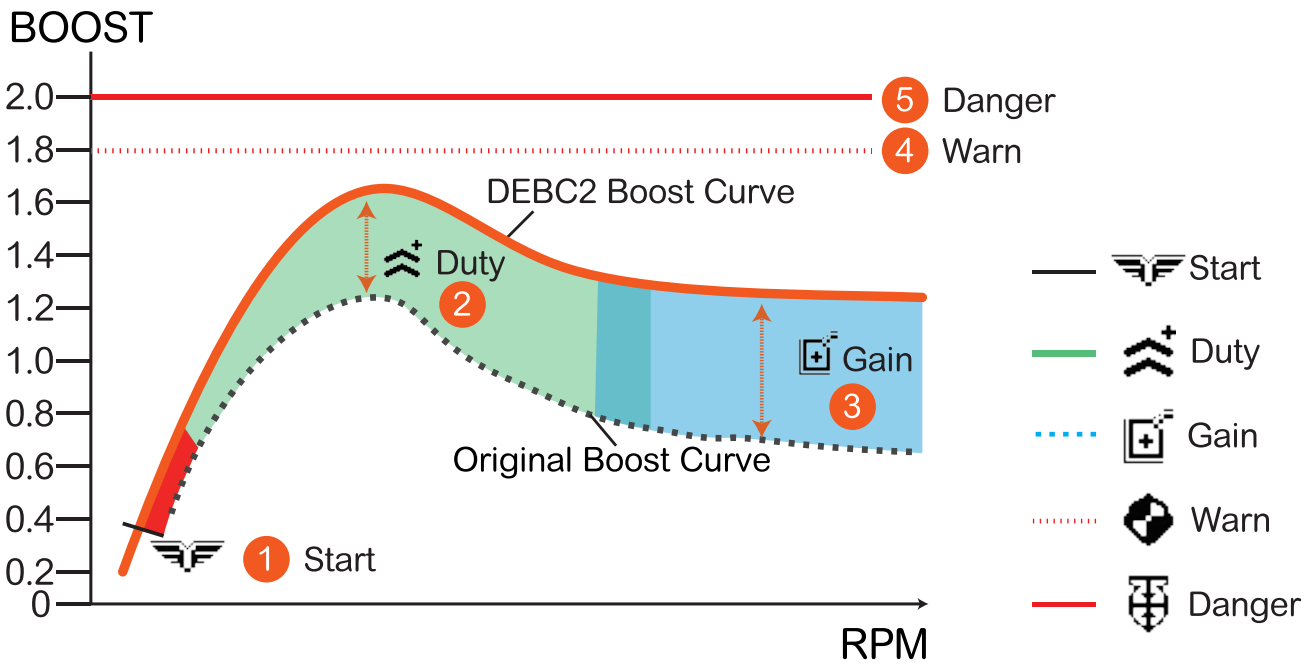
Rotate to select an item / press Enter to adjust the parameter.

Press the Return button to go back to the value selection menu.

Rotate the knob to increase or decrease the parameter. Press the Return button to go back to the previous page.

Current boost pressure is displayed simultaneously.

DEBC2 EFFECTS



1 Start — Intervention point: determines when boost control begins. When actual boost reaches this value, the solenoid starts operating. (Setting range: 0.10 Bar and above)

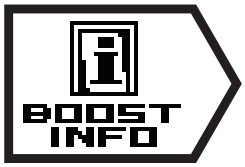
2 Duty — Peak boost value: determines the maximum boost target. Higher values increase boost quickly; excessively high duty may cause overboost.
(Setting range: 0 – 100%)

3 Gain — Boost sustain: helps maintain boost level and improve stability during the drop-off phase.(Setting range: 0 – 100%)

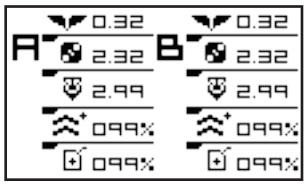
4 Warn — Warning value: triggers a warning when reached. A warning screen and buzzer alert will activate to notify the user.
(Setting range: 0.10 – 3.00 Bar)

5 Danger — Safety cut value: when boost exceeds this limit, the controller forces boost reduction to prevent engine damage or overboost-related failures.
(Setting range: 0.10 – 3.00 Bar)

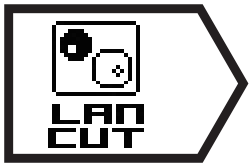
SETTING INSTRUCTION



Boost Information

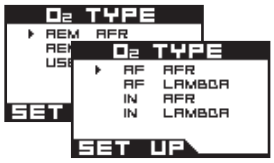


View the parameter settings of Mode A and Mode B for convenient comparison and adjustment.



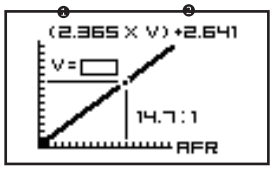
Wideband AFR Input & Lean-Burn Protection

DEBC2 supports connecting aftermarket wideband AFR gauges.
AFR values are read through the signal input to monitor combustion status.
If abnormal lean conditions are detected, the system automatically activates protection.



Connect the supported AFR sensor signal wire to the controller.
Enter the “LAN CUT” function menu to select the corresponding signal source.

Supported Brands:
AEM
INNOVATE
AeroFlow

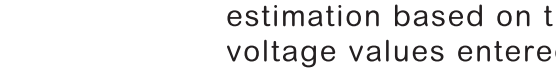


If no wideband AFR signal is available, the user can define a custom conversion formula through the O2 TYPE menu, allowing AFR estimation based on the voltage values entered.

Adjust 1 and 2 to calculate estimated AFR.
The formula generates the corresponding AFR value.

ON: Enable lean-burn protection
OFF: Disable system intervention

After enabling, users must set the AFR threshold.
When actual AFR exceeds the threshold (lean condition), DEBC2 immediately activates boost cut to prevent engine damage caused by lean combustion.



Rotate the knob to select the number you want to modify
→ Press Enter to begin editing (the number will blink)
→ Rotate the knob to adjust the value
→ Press Enter to confirm
→ Press Return to go back to the previous menu

If you want to exit, press the Return button again to return to the upper menu.

SETTING INSTRUCTION

Main Unit Settings & Calibration Function

This product provides customizable options. Users may adjust based on personal preferences.

UNIT

Supports switching between pressure display units.
You can freely switch between Bar (×100kPa) and PSI.

ALARM

Built-in three-stage buzzer volume.
You can freely choose or completely turn off the alarm sound.

RESTORE

This function resets all data to factory default values.
Use it when changing vehicles or clearing system parameters.

VOLUME

To accommodate different user preferences,
you can adjust the volume from low to high levels.
Mute is also available.

DIRECTION

Supports display orientation switching.
You can switch between left and right display layouts
for easier viewing after installation.

BRIGHTNESS

Brightness offers 10 levels for adjustment.
You can switch according to the environment
to ensure display clarity.

CALIBRATION

If baseline pressure drifts due to altitude or environmental changes, please perform CALIB calibration to reset the pressure zero point.

1. Turn the ignition to ACC without starting the engine.
2. Go to DEBC settings and select "CALIB".
3. Select "YES" to complete calibration and reset the value.

Troubleshooting

When you think the machine is faulty, please confirm the following items before sending it for repair:

Problems	Why	Confirm items
No display after power is turned on.	Power wiring or connection is poor/faulty.	Confirm that the Red and Yellow lines are connected to +12V; the Black line is connected to Ground.
Alarm/Warning sound is constant.	The alarm value is set below the current pressure reading.	Please confirm the alarm setting value and reset it.
	Poor connection in the pressure sensor wiring.	Please confirm the pressure sensor and pressure sensor harness are correctly connected.
Unable to reach the target boost value.	The set boost value exceeds the mechanical limits of the component.	This product allows Gain and Duty settings from 0% to 100%. Adjust the Gain and Duty according to the optimal tuning condition of the vehicle.
	Incorrect piping connection or vehicle hardware abnormality.	Please check if the vehicle hardware or ECU is abnormal. Air leaks, pressure pulsation, etc., may affect the boost value.
	Air leaks/detachment in the pressure line of the turbocharger/engine.	Check for air leaks in piping (intake/turbo). Severe leakage may prevent the target boost from being reached.
	Poor connection in the pressure sensor wiring.	Please confirm the pressure sensor and pressure sensor harness are correctly connected.
	Sensor aging or vacuum line rupture.	Please check the sensor, solenoid valve, and vacuum line for signs of aging, detachment, or rupture.
	Controller malfunction.	Perform a system reset using the RESET function in the SET menu.
	Altitude change.	Perform a zero-point calibration using the CALIBRATE function in the SET menu.
Boost value suddenly increases significantly during acceleration, exceeding the original default setting.	Poor connection in the solenoid valve wiring.	Please confirm the solenoid valve is correctly wired, and check the harness for breakage or rupture.
	Poor connection in the pressure sensor wiring.	Please confirm the pressure sensor and pressure sensor harness are correctly connected.
	Vacuum hose rupture or detachment.	Check the vacuum line connecting the engine, sensor, solenoid, and exhaust bypass valve for any signs of rupture, detachment, or poor connection.
	Exhaust bypass valve malfunction.	Please check if the exhaust bypass valve is operating normally, and if there are any abnormal sounds.

When the product needs to be repaired, please collect the product body and accessories and return them to the original place of purchase.

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