

Manual - CRITICAL Information v2.6



→ Compatibility Overview

To use and understand this manual you will need to read and reference the 62page v2.5 manual: This manual is an update with additional features & functions. Both manuals may be used side by side.

The Version "v2.6" screen may be used on the v2.5 and 2.0 control units
As a replacement/ second screen option.

Note: Some features and warnings are tied to both the control box and screen.
Customers purchasing v2.6 screen(s) only some functions will work.

WARNING: v2.6 control unit is not backwards compatible with older model screens. Testing indicated that displays would show broken warning logic, display incorrect data & Phantom readings: (Show pressures and temperatures on un-monitored input channels).
What to Expect? Basic features below:



V2.5 Control box + v2.6 14in1 Screen

- Low Coolant Warning
- 3x Auxiliary relay triggering from temp inputs



V2.6 Control box + v2.6 14in1 Screen

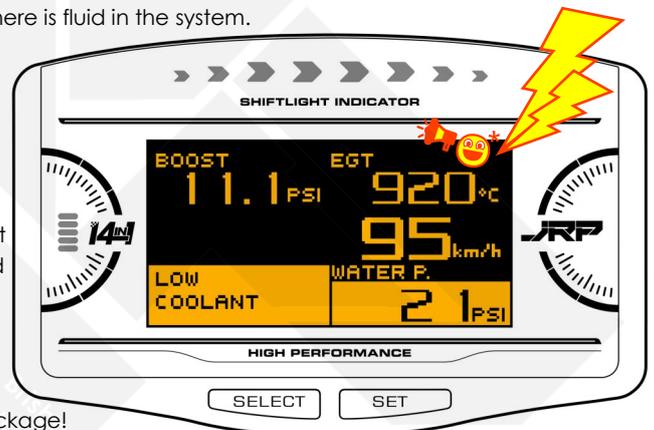
- Low Coolant Warning
- Water pressure display with high pressure alarm
- 3x Auxiliary relay triggering from temp inputs
- Advanced Diesel Wideband Rich Warning

🔔 What is Head Guard?

Head Guard is JRP's latest addition to our 14in1 Multi-gauge and 52mm Gauge line.
It's always been obvious for both 4x4 and performance race vehicles that it was critical to monitor engine coolant temperatures.
Now, that's only half the picture and a clue to a potentially expensive problem...
Water Temperature gauges generally will display reliable data, **ONLY** if there is fluid in the system.

No water = Bad news for engine,
and the temperature gauge reads silly numbers!

2024 brought on the development of detecting water and coolant fluids in the radiator system. This led us to specially develop a water detection sensor that will trigger an alarm on the JRP 14in1 Multi-gauge. So even if it detects a momentary air pocket in the cooling system JRP's Head Guard has you covered sounding and displaying an alarm at the bottom of the screen. This can also help diagnose potential fluid bleeding issues when changing your coolant as part of regular vehicle maintenance.

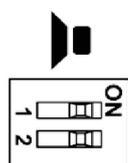


Head Guard Ultra is where all this comes together in the perfect Little package!

This is an innovative system developed here at JRP to further protect engines. Temperature Warnings, Water detection integrated with a separate water pressure sensor installed in the cooling system. Head Guard Ultra is a system we developed where the gauge is always monitoring the normal pressures within the cooling system. Most Radiators will maintain a similar pressure all the time, be it 12 to 20 psi, and it won't really deviate much once the system is up to operating temperature. The only reasons you might see the system go from 15psi to 35psi is because there has been some kind of failure within the system. This could be a simple thermostat getting stuck closed or a Head gasket on the way out.

The aim of Head Guard Ultra is to alert you to the fact something has gone very wrong with your engine right away, if you manage to catch a blown head gasket, or stuck thermostat **QUICKLY**, then this can be the difference between replacing a cheap part or 2k - \$10k in engine damages... Once you warp a head it's done, and this little feature will help keep you alerted potentially before you see catastrophic failure!

Activate Head Guard Ultra covered in detail on [Page 3](#), * **Important headguard display setup: page 2.** *



There are 2x alarm chime styles that can alert you to an issue on the gauge.

A "SLOW beep" should be set on the screen and will activate when the gauge detects **Low Coolant**.

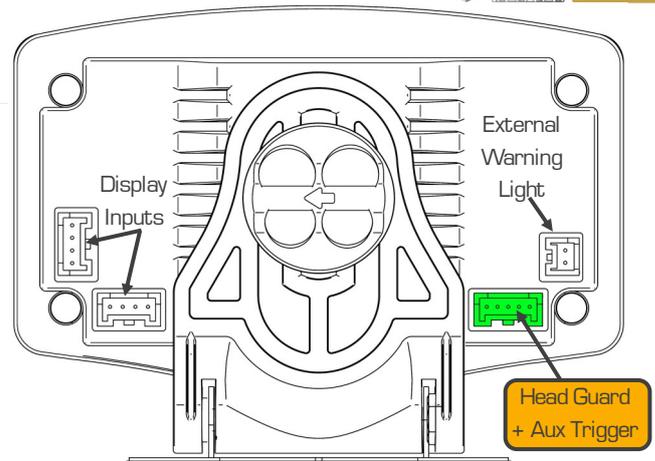
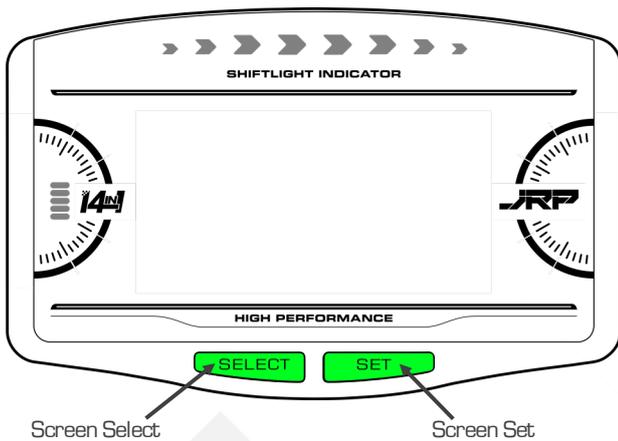
You should then set the control box warning buzzer to **ON** so you can have a loud and "Fast Beep" sounding alarm to your High Pressure warning.

Switch No.1 Controls sound output on control unit. **Switch No.2** changes IAT to Transmission Temperature.

Manual - CRITICAL Information v2.6



Know Your Screen



Screen Buttons will be referenced during setup. Looking at the front of the gauge screen there is: "Screen Set" and "Screen Select." Head guard and Auxiliary Relay triggering functions are accessed through the screen setup menu. Press Screen "Select & Set" at the same time to access this "Display setup" menu. Short press "Set" button to move through menu, Press "Select" to change settings on the highlighted option. Press both "Set" and "Select" at any time to exit this display setup menu.

Screen power is obtained from the control unit and connected to one of the 4 pin "Display Inputs" on the left looking at the back of the screen. There is no bias and the Extra 4 pin port is used to link off to additional screens. Up to 7x JRP 14in1 screens may be linked and controlled with one control unit. (See page 20 on v2.5 manual if running more than 1x display). The v2.6 must be the first in the "Daisy chain link" and "ACTIVE" for Head Guard and Auxiliary triggering to work correctly. **Head Guard + Auxiliary trigger** is connected to the screen by the 5 Pin input on the back of the screen (image top left).

Head Guard Display Setups

You will need to purchase the "5 pin screen cable," and other supporting cables for Low coolant + Auxiliary triggers.

Low Coolant is accessed through the display setup menu, Press Screen "Select" & "Set" at the same time to access this menu. Short press "Set" button to move through menu to show "Low Coolant Delay." Press "Select" to change this value from **OFF**. Its recommended to change the setting to 2 Sec & have the probe active as soon as possible when water isn't touching the probe. Low coolant alarm can be changed to other delay numbers depending on the sensor install location and what the vehicle is doing. High G-force or extreme off road tracks may cause coolant slosh that can trigger false alarms, so adjust as necessary. Sensor installation covered in detail on [Page 4](#).

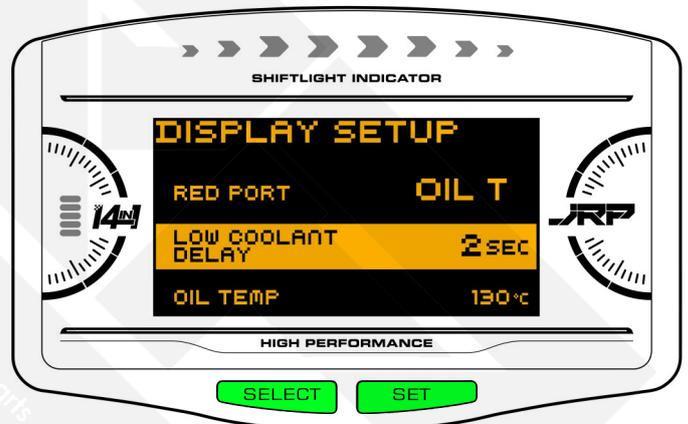
Auxiliary trigger is designed to activate a relay that can then switch and control high powered circuits away from the multigauge. You can set this to happen in response to a temperature that is input into the control unit. This temperature can be displayed on the main screen or be run in the background. What to trigger is down to how creative you get. Some example applications for the Aux Trigger is to activate fans for radiators, water, oil and transmission coolers. Even methanol injection systems or intercooler sprayers. Basic wiring diagram on [Page 3](#).

Set Auxiliary Trigger Point at a temperature number that you need a circuit to activate and turn on. Defaults are the highest in the range for that sensor, make adjustments with the "Select" button.

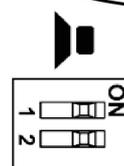
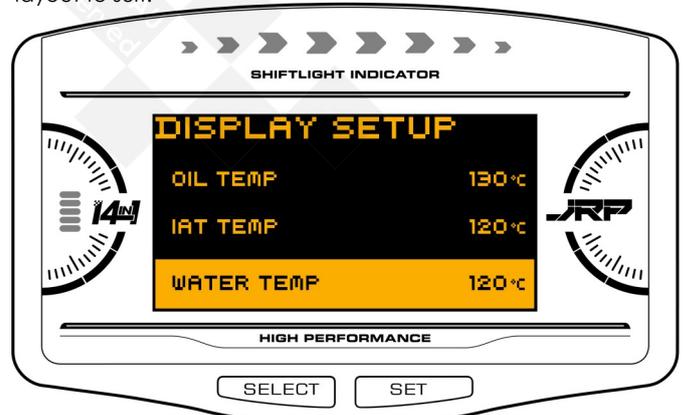
Oil Temp can interchange between Oil Temp or Transmission temp. Use the "Red Port" display setup option. This will change the label on the display setup menu also.

IAT Temp will reference the IAT port on the control unit, if dip switch 2 is moved to the Trans temp, IAT label will not update.

Water Temp for water temperature input only.



WARNING: Low Coolant Alarm will override all warnings active in bottom left corner of the display. Configure screen layout to suit.

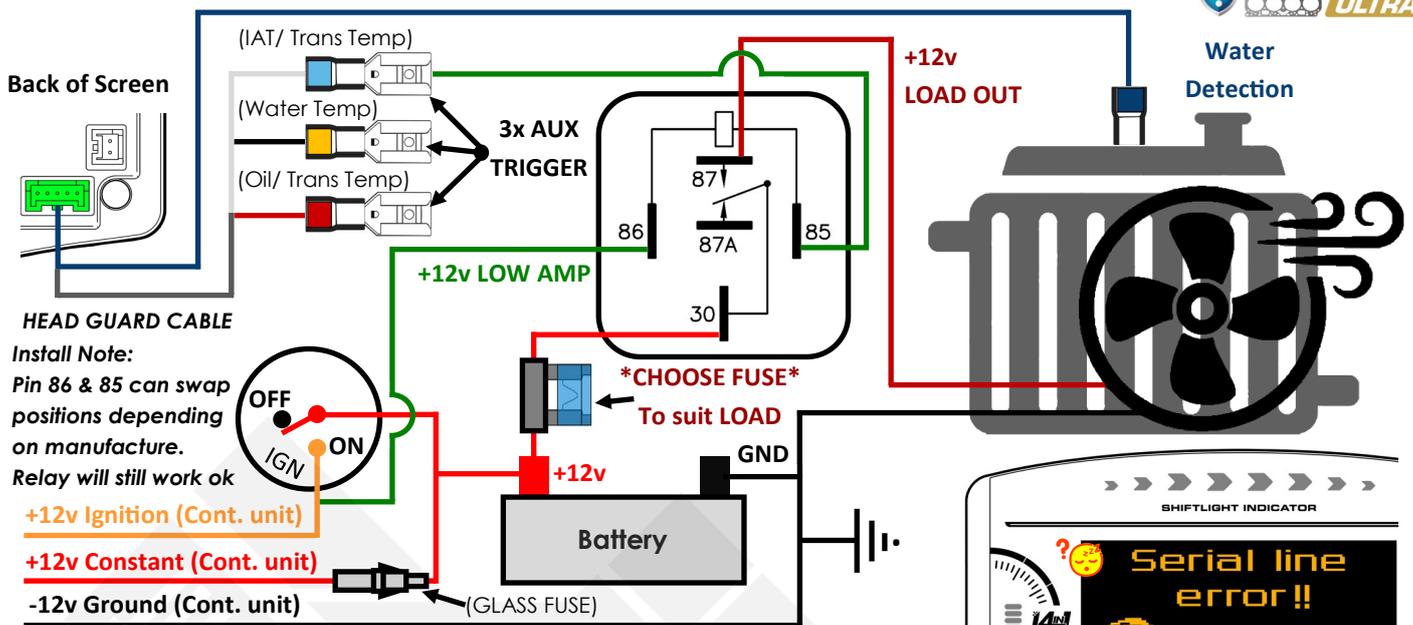


Switch No.2 Changes IAT to Transmission Temperature. (control unit)

Manual - CRITICAL Information v2.6



⚡ Connect Your Auxiliary Relay Trigger



🔊 Activate "Head Guard Ultra"

Button on control unit PCB will need to be double pressed quickly then ignition power cycled to put Multi Gauge into water pressure mode instead of fuel pressure. "Page 4"

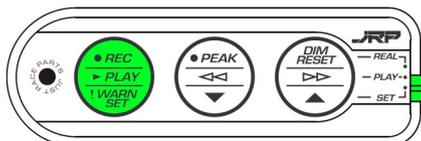
Pressure Warning Setup will require changes to the default settings. Head Guard Ultra needs to monitor water pressure and the screen layout should be adjusted so that Water Pressure is in the bottom right corner. With this you should be able to get an idea of what your normal operating pressures are straight out of the box. Generally the vehicle should be up to normal operation temperature after about 15 - 20 min of normal driving and the cooling system should be pressurised. Take note of the number on the screen then set a pressure alarm a 1-2 PSI above the standard pressure. (You may need to make a slight adjustment to this later on).

Handy tip: Use "Peak" playback to see highest pressure.

Your Radiator Cap should have a rated pressure on the cap. Examples: (Right)

Show radiator caps in BAR, PSI, and KPA. Sadly for no good reason this isn't standardised and you may need to calculate conversion to set up your preferred units (KPA/ PSI). A Radiator cap that's in good condition should relieve and modulate pressure in the cooling system when it reaches the number indicated on the cap. (Check owners manual as not all caps have this information).

Set Water Pressure Value in the warning setup menu. Water pressure should be "at or just" above value indicated on your radiator cap, Covered in detail on page 54 of v2.5 Manual. (Quick steps below)



- Using hand controller slide switch to the "SET" Position, Press "!" WARN SET." This will display: WARNING SETUP menu.
- Navigate to WATER PRESSURE by pressing "!" WARN SET." Press ▲ or ▼ to adjust the pressure value. When complete slide "SET" switch back to "REAL."

Water Pressure/ Fuel pressure Will display in the same position in the warning setup menu. To change between the 2 modes double press the factory reset button on the control box. More on [Page 4](#)

Test vehicle where you can put the engine under load after its up to operating temperature (Where safe to do so - Yes this can be done without speeding or access to a race track).

Manual: choose higher gear then what's required for conditions, flat or slight incline road. Apply more then 50% throttle

Automatic: can be a little more difficult requiring a long constant incline use more throttle then your standard cruising position. This is a test to see if the water pressure alarm momentarily activates. If the alarm becomes too invasive check the "PEAK pressure" and set alarm one more PSI beyond that. Now the alarm should activate and catch a true over pressure situation when you're really into it on the track! If the pressure alarm is active more then a few seconds and further increasing in value, turn your engine off and check what is going on! Now that you know the pressure alarms are active you can customise your gauge screen layout:

[See page 38-40 on on v2.5 Manual for Screen layout.](#) Or [video guide no.1 change screen layout.](#)

OLED V2.6



Manual - CRITICAL Information v2.6



Water Pressure Detailed



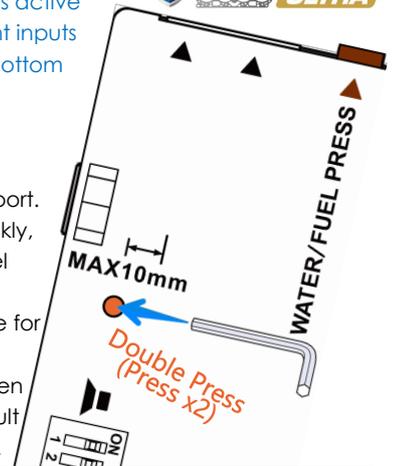
Little Low Coolant Alarm is very stubborn! And will override all warnings active in bottom left corner of the display. Its advised that the most important inputs are configured so that when their alarm is active they are not in the bottom left hand corner of the screen.

See page 38 of v2.5 manual for in-depth screen layout setup.

Water pressure by default is set to Fuel pressure and will need to be changed if using this part of Headguard Ultra. On the control unit: insert the water pressure sensor into the brown Fuel Pressure port. While the control unit is powered you will need to **Double Press** the button on Control unit PCB quickly, confirmed with a beep. Then power cycle the ignition to change the Multi Gauge from the low fuel pressure mode to Headguard Ultra's "High Water Pressure mode."

Detailed on [Page 3](#), you will need to use the hand controller to set the desired water pressure value for the multiguage to monitor. (Warning setup menu more info [Page 5](#)).

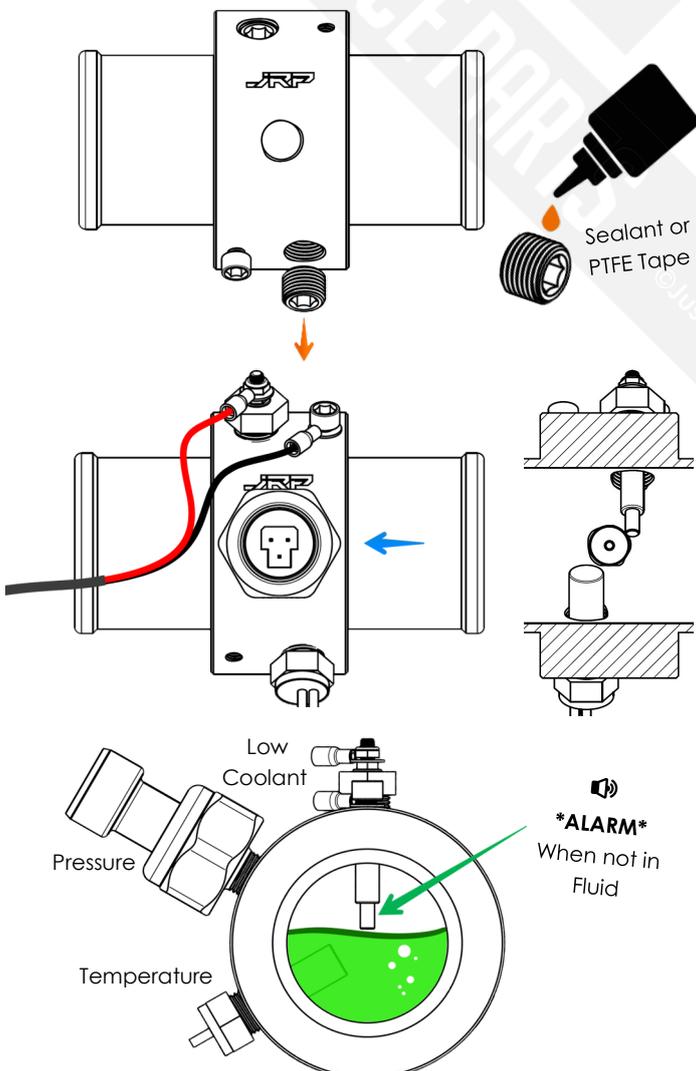
Handy Tip: The button on the control unit can be pressed with the M4 Hex key supplied with screen bracket kit or JRP 3 port hose adapter. Press and hold for 10 seconds to factory reset back to default settings. **You must remove 5pin headguard cable for reset!** (turn low coolant alarm off if not in use).



Install Water Sensors

WARNING: It's highly important to run an independent ground wire from the hose adapter to the either the negative terminal of the battery or to a clean ground point on a negatively charged chassis. Also **critical** for reliable engine monitoring and long-term sensor life that: High quality, and clean engine coolant/ anti-freeze is used in your vehicles radiator cooling system. Water alone will not only damage the entire cooling system with corrosion, but this will also lead to premature sensor failure.

For easy sensor installations: Use the JRP 3in1 Radiator hose adapter kit. Please ensure that you purchase the correct size to suit your cooling system hose diameter. Radiator hoses are designed to work under pressure and will not stretch to incorrectly sized spout ends. You can check hose size with your local auto parts supply store, or measure the diameter of an exposed spout on the cooling system. (Ask JRP Sales team we're here to help!) 😊



1/8 Threaded holes are tapered and don't need to be over tightened. JRP adapters are supplied loosely assembled. CHECK & Install all fittings finger tight to verify fitment in vehicle before final installation. WARNING Anodised coating: may need to be removed on inside face of hose adapter Low coolant circuit to complete. (Only if false alarms are present).

1. For final installation, remove grub screws and sensors. You must apply **high temperature** thread sealant or PTFE Tape to All 1/8 NPT threads on the male fittings.
2. Sensors should be finger tight, Then 2-3 turns firm. (7in-Lbs/ 0.79Nm). Follow directions recommended on tread sealing method for best results.
3. Pressure sensor (**Blue Arrow**) Should be installed in the centre port. Looking at the section view its important to install the sensors in this configurations so that probe tips have no chance of colliding.

Wires: should be secured so that they do not have harsh kinks at the termination point. Cable tie and run parallel to radiator hose.

Handy Tip: Expandable **braided cable sleeve**. Corrugated conduit or spiral sleeve should be used to cable manage and group the sensor cables together.

4. Install separate ground wire as mentioned in warning above!
Low coolant sensor should be installed so that the Chrome tip is at the highest point in the fluid stream. Air pockets are more likely to develop at the highest point in the cooling system. Depending on your hose diameter you may need to mount the Low Coolant Sensor upside down?

Sensor Reference below:



Manual - CRITICAL Information v2.6



Diesel Rich Warning

Page 29-31 of v2.5 Manual covers in detail wideband setup. Start from page 21 for all system setup information.

Petrol and diesel Wideband alarms function a little differently. Broken down into simple terms: Petrol turbo vehicles are considered safer on the rich side, and dangerous on the lean side, Where as Diesels are completely the opposite! LEAN is normal operating conditions and rich is the DANGER ZONE! "Thanks Kenny Loggins."

Naturally as you drive Air Fuel Ratios will sweep from super lean to fairly rich with minor throttle input, so its almost impossible to set a number as this will trigger an alarm all the time! You need the alarm to alert you to an out of bounds fuel condition only while you're giving your engine the berries!

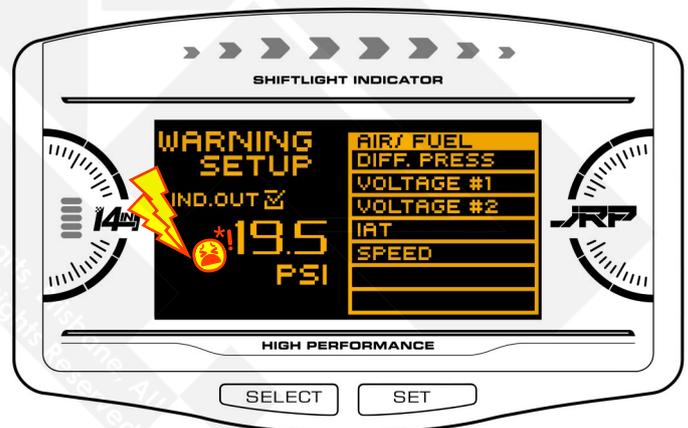
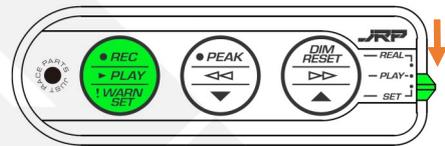
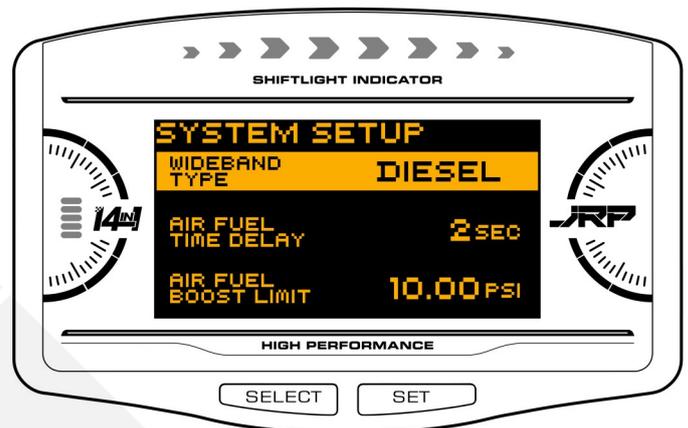
The v2.5 already had a decent wideband warning system for the petrol guys, where it would trigger an Air Fuel Ratio Warning while vehicle was under load: basically it would be armed and watching for a LEAN condition, when you're almost at full boost, and if you exceed the limits you get the alarm! However this warning logic wouldn't work for the diesel guys, so we could only display the Diesel AFR, then disable all the other warnings.

This is now solved with the advanced Diesel rich warning on the v2.6.

Diesel Wideband Setup will require the gauge to be moved from normal mode 10-20 AFR to 10-40 intended for diesel engines.

Warning You will need a special wideband controller that supports diesel AFR. You can purchase the **Spartan 3D Diesel Wideband** from Just Race Parts pre-configured for diesel engines.

- Using hand controller slide switch to the "SET" Position, Press and hold "I WARN SET" for 3 Sec. This will display: SYSTEM SETUP menu.
- Navigate to WIDEBAND TYPE using ▲ or ▼ Press "I WARN SET." Using ▲ or ▼ change wideband type from NORMAL to DIESEL Press "I WARN SET" to confirm.
- Continue through menu with ▲ or ▼ then select AIR FUEL BOOST LIMIT Press "I WARN SET." Using ▲ or ▼ set the value to "1/2 the Max boost pressure your engine is tuned for" E.g. Engine is tuned for Max power at 24PSI, Your AIR FUEL BOOST LIMIT should = 12PSI
- AIR FUEL TIME DELAY can be adjusted to delay the rich alarm from triggering while the alarm conditions are met, this can stop false alarms during gear changes. 2-4 Seconds is usually the sweet spot
- Move side switch back to "REAL" settings will be saved.
- Warning Setup** Next slide switch back down to the "SET" Position and short press "I WARN SET" This will enter the warning setup menu.
- Continue to press "I WARN SET" till AIR/ FUEL is highlighted. Change AFR Rich value using ▲ or ▼ till you have AFR number value that you want to trigger the alarm.
- Move side switch back to "REAL" JRP Advanced Diesel Rich Warning is complete.



What AFR is Safe and what is too rich for my diesel engine? The AFR Number value will be variable depending on the engine. some engines respond well as low as 18:1. Where other engines will blow a head gaskets anything lower then 22:1 AFR. So you should consult the tuner or mechanic working on the modifications on your engine to seek guidance on your set number.

Remember extremely rich mixtures (even lower then 18:1) can lead to incomplete combustion, increased particulate emissions, and rapidly produce catastrophic engine temperatures/ conditions! "Ever seen a Diesel runaway video?" we don't want to see that happen to anyone.

All this being said, It's crucial to monitor your engine parameters and ensure that the AFR stays within safe limits to maintain performance! If the vehicle is used for public roads then you should also consider fuel efficiency, and emissions compliance with local law enforcements. Regular tuning and monitoring by a qualified technician or using appropriate diagnostic tools are recommended to ensure optimal engine life.