

LDperformance DASH



Features

- Displays 6 parameters at a time
- High visibility large display
- Many parameters to choose from (see list)
- Compatible with Megasquirt 2
- Easy to wire up and tune
- Each parameter has a safety warning level
- Firmware updates over serial port

Input options

LDperformance RACE DASH can connect to an ECU and pull all required data from there. Also it supports a number of sensors which can be directly connected to the DASH.

The currently available firmware supports Megasquirt 2 ECUs. The connection is done through the supplied serial port cable. The list of parameters the DASH can use from MS is:

RPM

BOOST

AFR

Coolant Temp

Air Temp

Injector Duty Cycle

Spark angle

Battery Voltage

LDperformance DASH can display additional parameters if the suitable sensors are connected. It can also be used in standalone mode without connecting to a Megasquirt ECU. The list of possible parameters is:

AFR – 0-5V input compatible with most wideband controllers and LDperformance wideband

RPM – Detects RPM from negative wire of injector or ignition coil

Coolant / Air / OIL temp – 1/8npt temperature sensor available

OIL / Fuel pressure – 1/8npt pressure sensor available up to 10 bar (150psi)

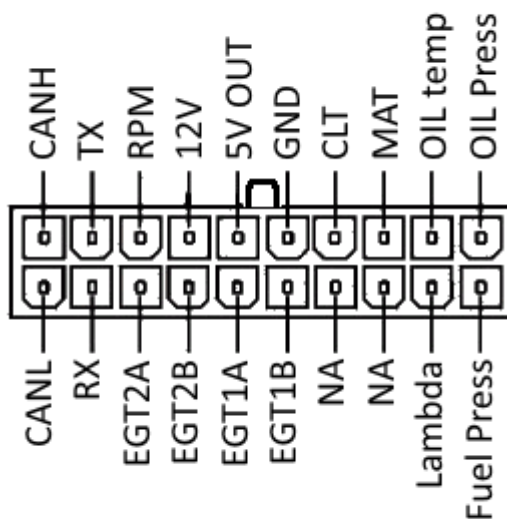
EGT – 2 channels of Exhaust gas temperature measurement – EGT probe available separately

Battery voltage

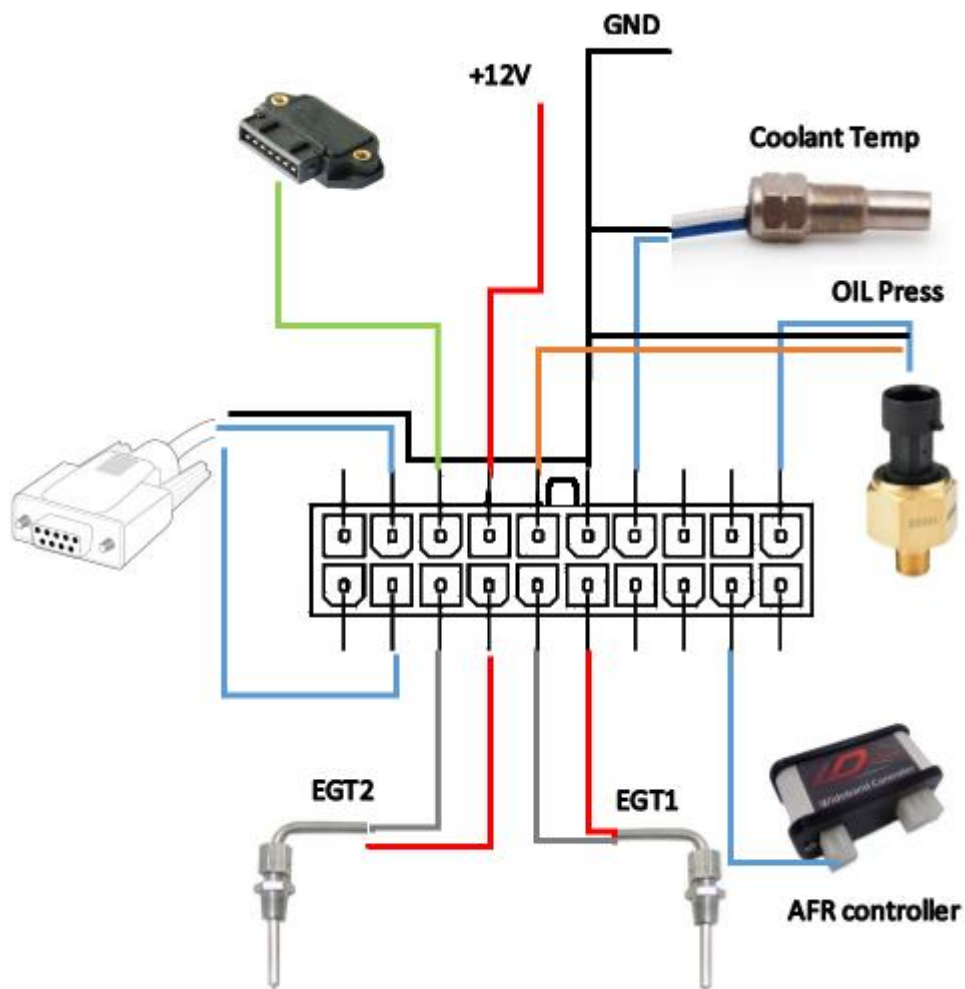
Device temperature

External signal Duty cycle and time low

Connector pinout



Wiring diagram



RPM

The unit is capable of detecting engine RPM using the tachometer signal. This could be available at the ECU or the ignition module of the car. Alternatively, a signal wire going to an ignition coil or injector could be used.

Temperature

LDperformance RACE DASH has 3 temperature inputs - Coolant, Air and OIL. They are identical. Suitable sensor is available from LDperformance.

Pressure

Two inputs are available – OIL and Fuel Pressure. These use 3 wire sensor available from LDperformance. The sensor measures up to 10 bar (150psi)

Serial port

The wiring harness already has the serial port. It can be used to get data from the ECU (currently Megasquirt 2) or to configure the DASH from a laptop using USB to serial adapter.

CAN BUS

This feature might not be available on all units and needs a firmware upgrade to be used.

EGT

On-board are also two channels of exhaust gas temperature measurement. All that is required is to connect EGT probe according to the wiring diagram. Polarity is important – it will not work if the wires are reversed.

AFR

The input is 0-5V which corresponds to 7.4 – 22.5 AFR commonly used by wideband controllers as well as the LDperformance Wideband Controller.

Using configuration software

Connect the device to a laptop using a USB to serial adapter. Make sure the adapter drivers are installed and a COM port appears in Device manager.

For the tuning application to work the adapter cable must have the lowest COM number. For example, if it is COM3 there should be no COM1 or COM2.

Start the Tuning application and turn ignition on.

On the left is a drawing of the DASH and on the right is a list of all parameters.

Configure position:

To choose what is displayed where, pick a parameter from the right and drag it over the desired location on the DASH. Changes come into effect immediately but are not saved automatically, so press the SAVE button to keep the settings.

Set Warning threshold:

Some parameters have a warning level. When it is reached the display will start blinking to attract attention. Temperatures, boost, RPM, AFR have an upper threshold, while pressures have a lower threshold.

To set, right-click on a parameter and enter the threshold value. Press "SAVE"

Configure RPM lights:

The top of the unit has 10 LEDs which show RPM. To configure the range of RPM click on the first led and enter the corresponding RPM that will light up the first LED, eg. 700. Click on the last led and enter the max RPM, eg. 8000.

If RPM parameter does not come from an ECU but from tachometer signal or ignition coil or injector it might be displaying half or $\frac{1}{4}$ of the real RPM. To fix that right click on the RPM parameter and press the "RPM x1 2 4" button a few times while looking at the RPM on the DASH. Once it shows correctly save the settings.

Restore default settings

The “Restore defaults” button loads default settings for the device. To confirm press enter or to go back press ESC.

Upgrading firmware

New firmware can be uploaded through the serial port. Open the application and verify the device is connected by changing positions, etc... Place the new firmware.hex file obtained from LDperformance in the same folder as the software. Click the “firmware upgrade” button. A console window opens showing further steps. To upgrade the firmware the device has to be turned on at a quite precise moment so it might take a few tries.

Calibrating sensors

The unit is already calibrated for use with LDperformance sensors. No need to do anything in that case. If you need to use your own temperature or pressure sensor it might be possible with a custom firmware or after recalibrating an input with a custom command. For more information contact LDperformance.co.uk