Emerald K3

How to configure the K3 to monitor a simple O2 sensor.

There are a number of configuration settings that determine where the ECU looks for a O2 signal and how it interprets this signal. The ECU's map must also be set up for a simple O2 sensor.

A simple O2 sensor is a standard narrow band oxygen sensor. This sensor type outputs a 0-1v signal. The sensor signal is wired to ECU pin 7 and the sensor ground is wired to ECU pin 18.

Essential configuration settings (AFR/Lambda input)

- *Input source* must be set to "[0] Not used". This setting ensures the ECU looks to pin 7 for the lambda sensor signal.
- The voltage/AFR table must be filled in as shown in figure 1 below :-
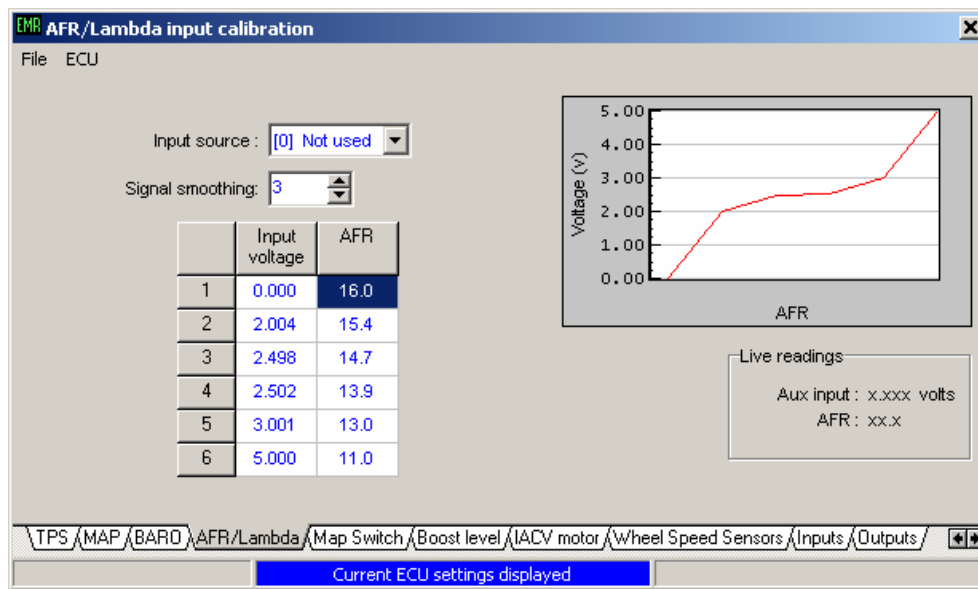

figure 1.

- For applications where the ECU controls the lambda sensor heater, e.g. Rover K Caterham/Elise, the "NB lambda heater control" output must be set to AuxOut36 as shown in figure 2 below :-
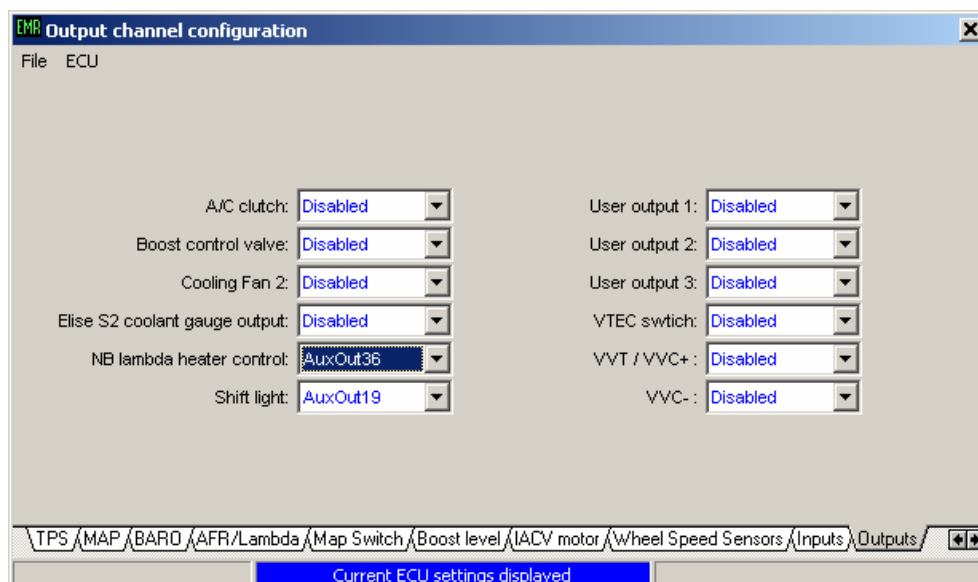

figure 2.

Essential map settings

- The ***closed loop settings*** page has two settings that must be set in order for the lambda signal to be monitored correctly.
  - ***Sensor type*** must be set to "Simple O2 sensor"
  - ***Update every*** setting must be >0.00. A setting of 0.00 will disable the   monitoring of the lambda sensor input. If the map switching function is used you should ensure that the ***Update every*** setting in each map is > 0.00.

The other settings on the ***closed loop settings*** page affect the closed loop and adaptive mapping functions but will not affect the monitoring/display of the lambda sensor signal. An example set up is shown below...
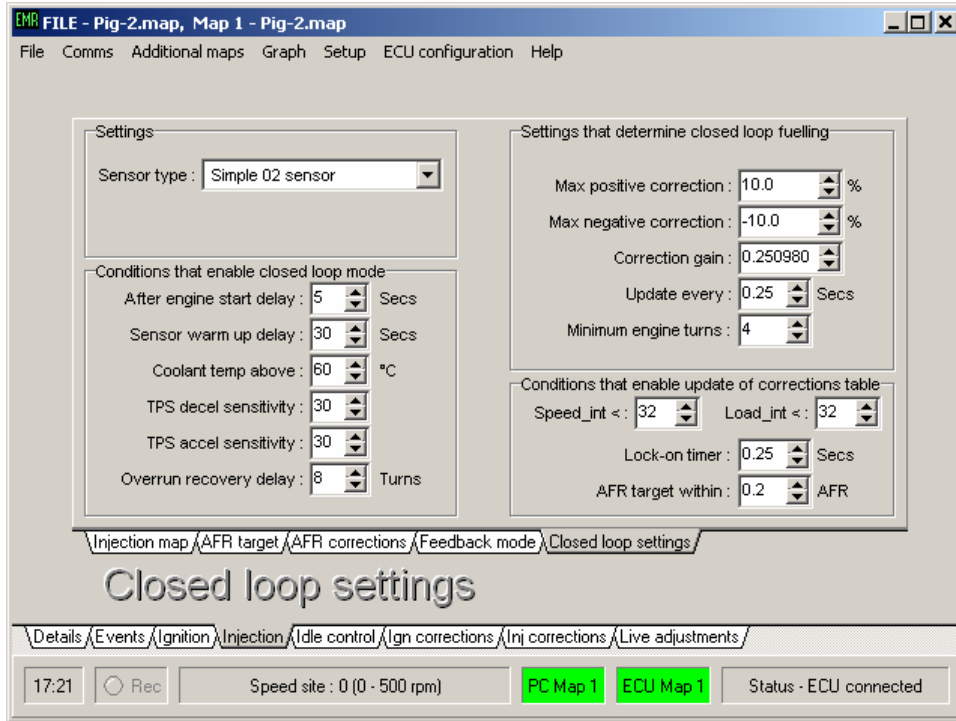

figure 3.

AFR target

The output of a simple O2 sensor is only accurate at 14.7:1 (lambda=1). With this sensor type you should only really target 14.7:1
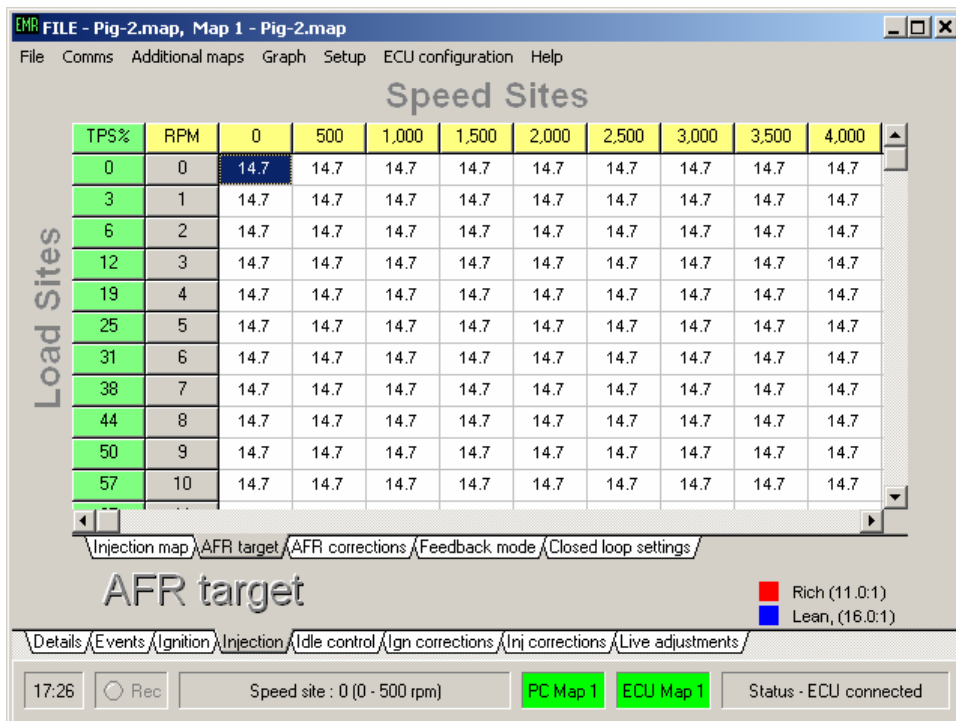

figure 4.

Feedback control mode

Use the feedback control mode table to set open/closed/adaptive modes. The example here is for a system set to run closed loop only at light throttle & low rpm.
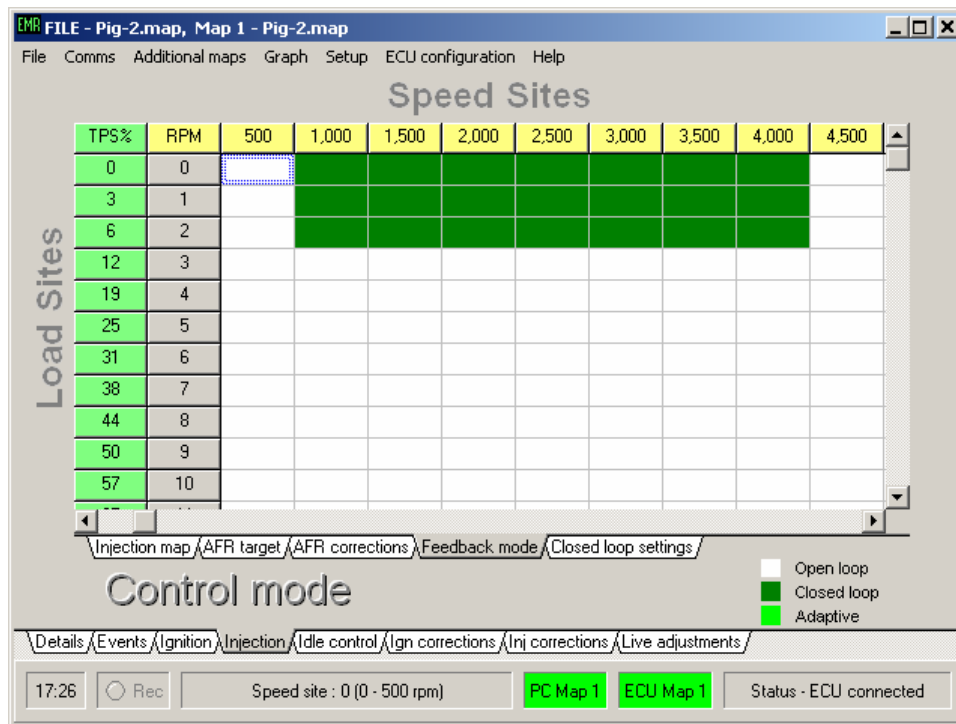

figure 5.