

DIGITRONIC

LSU CALIBRATION KIT SOFTWARE DESCRIPTION



INTRODUCTION

The LSU calibration kit is a calibrating and verifying instrument by means of which it is possible to:

- Graphically display and read the air-fuel ratio, actual pressure and the pressure emulated in Diesel engines converted with the Dual Fuel system MP48DF (see diagram 1)
- Graphically display and read the actual pressure and the pressure emulated in Diesel engines converted with the Dual Fuel system MP48DF (see diagram 2)
- Graphically display and read the air-fuel ratio on Diesel engines (either converted or not converted with the Dual Fuel system) by using the linear lambda sensor included in the kit (see diagram 3)

MINIMUM COMPUTER REQUIREMENTS FOR SOFTWARE INSTALLATION

Operating system	-	Windows XP or subsequent versions
Memory (ram)	-	At least 16 Mbyte
Hard disk	-	At least 20 Mbyte free at time of installation
Screen resolution	-	800 x 600 or higher

Internet Explorer 5.5 or higher must also be installed.

SOFTWARE INSTALLATION

To install the calibration software, put the CD-ROM in the computer drive and wait for the guided installation window to open.

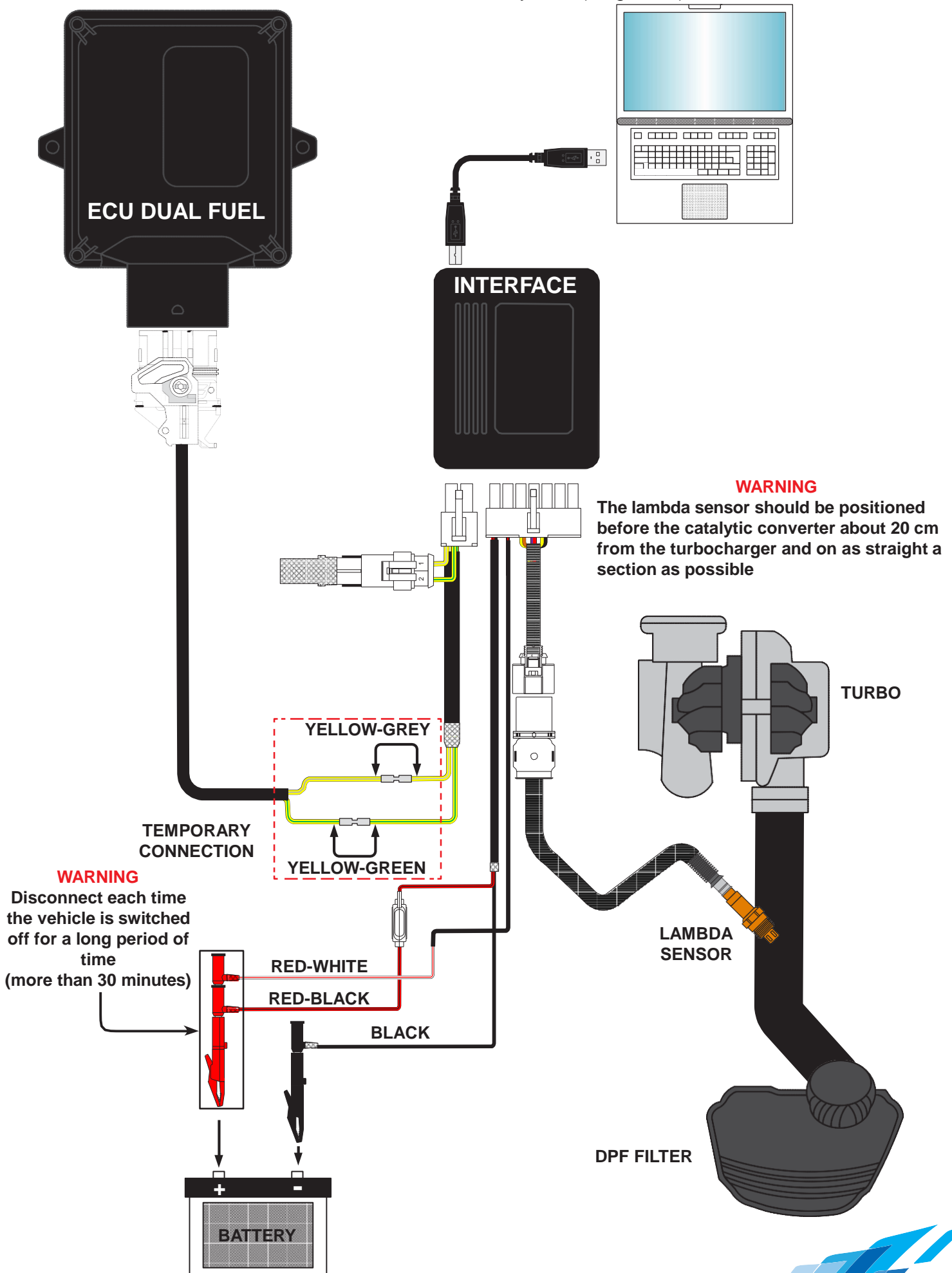
Follow the instructions given on the screen until installation is completed.

KIT CONTENTS

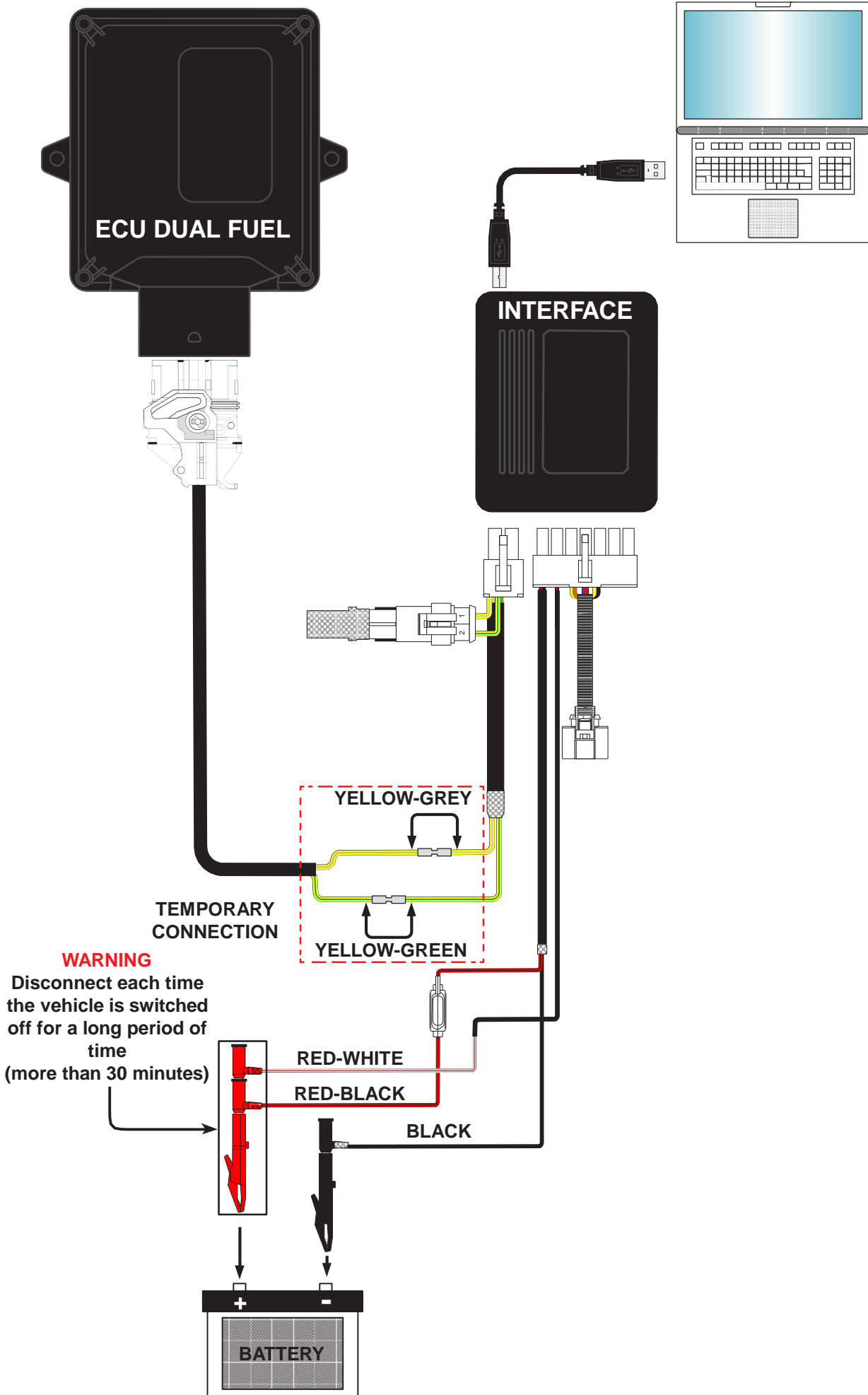
- ① PC interface
- ② Linear lambda sensor
- ③ Interface, lambda sensor and power supply connection wiring
- ④ Interface connection wiring with the Dual Fuel electronic control unit (MP48 DF) via CAN BUS
- ④A A- CAN line termination plug
- ⑤ A-B type USB wiring for connecting the interface to the PC
- ⑥ Calibration software installation CD



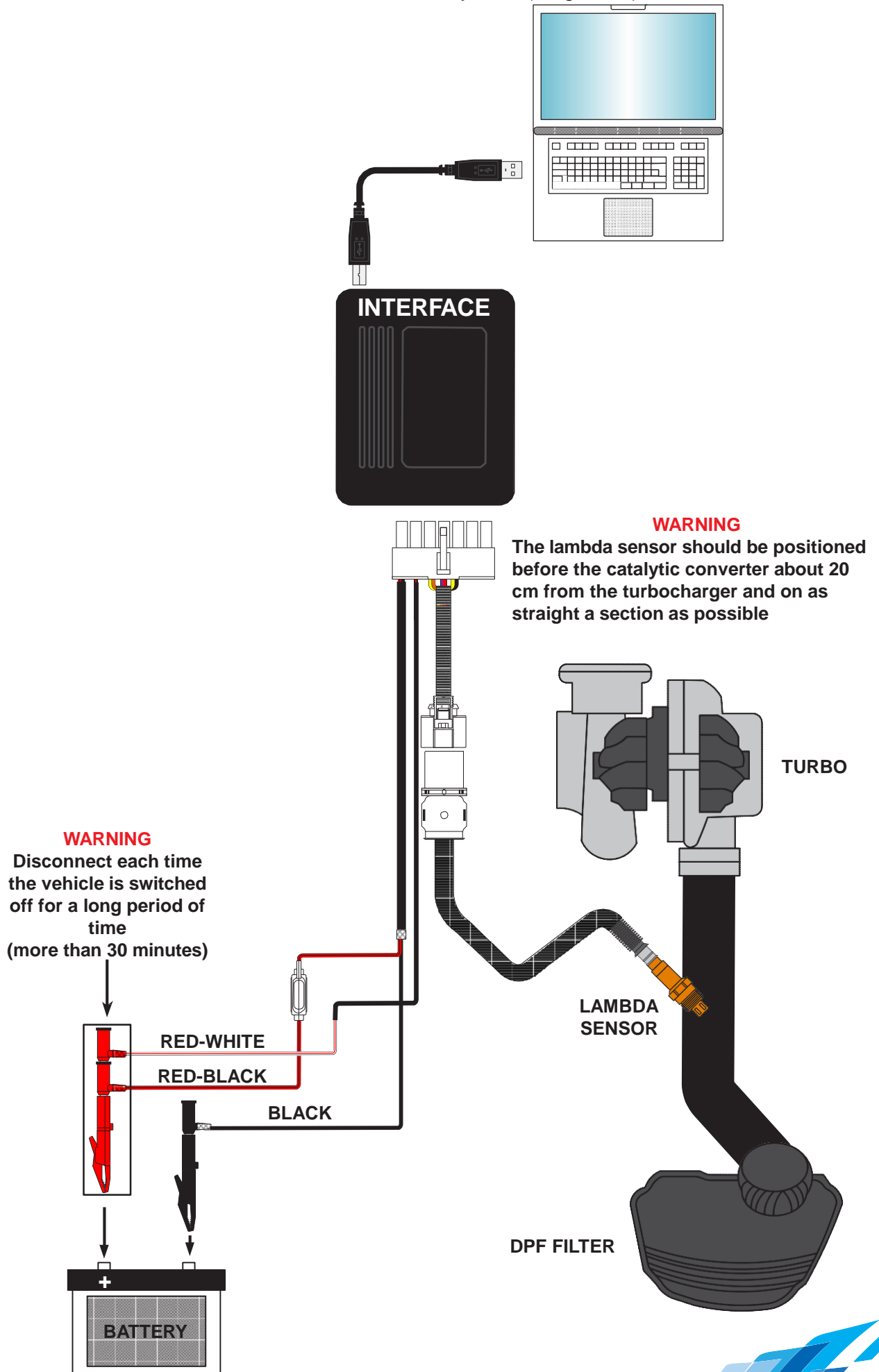
Graphical display and reading of the air-fuel ratio and the actual and emulated pressure diesel engines converted with the MP48 DF system (diagram 1)




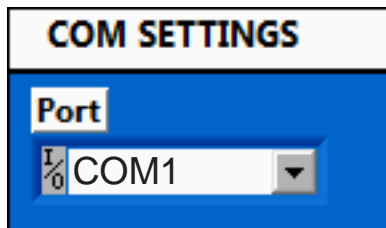
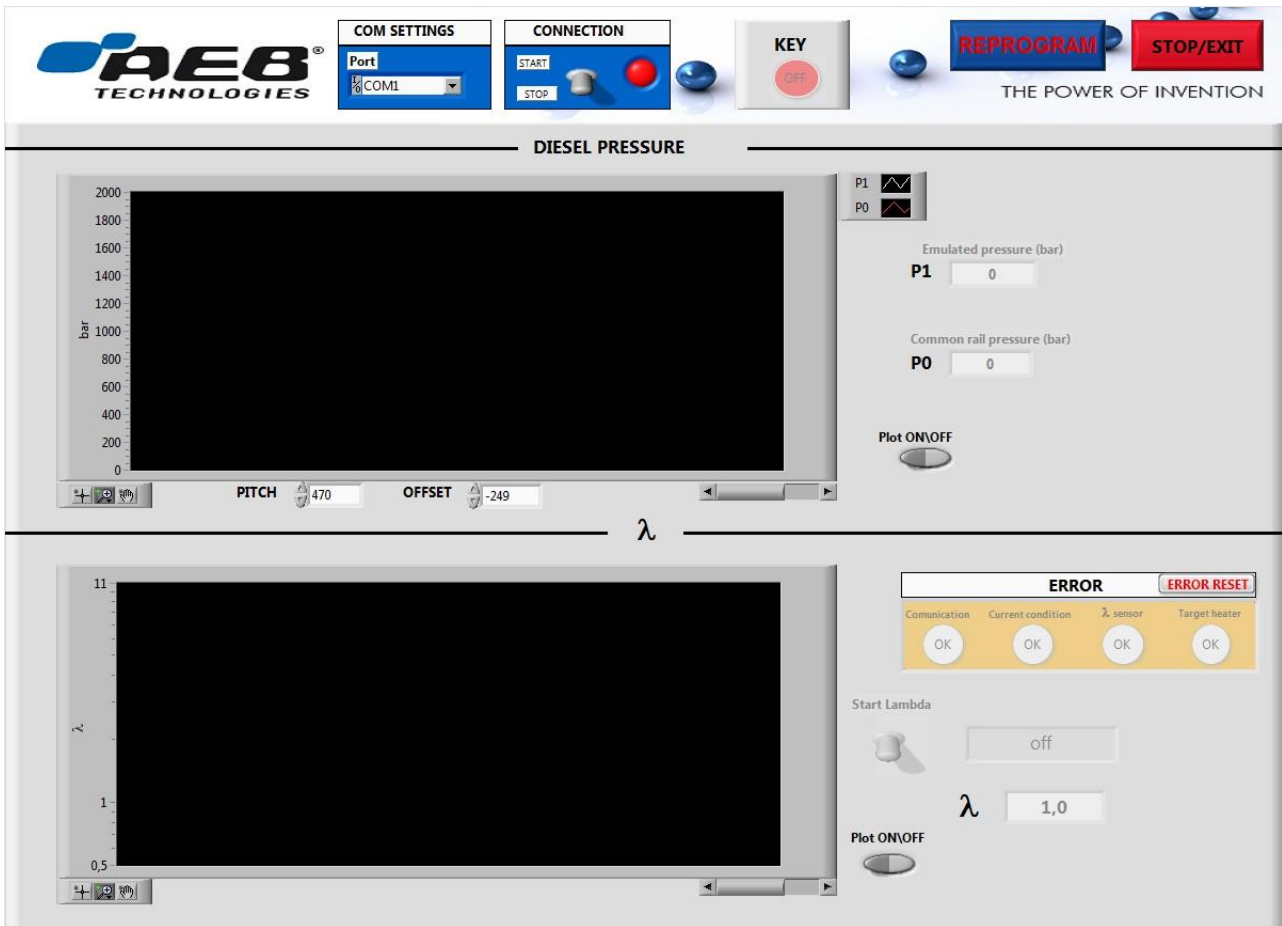
Graphical display and reading of the actual and emulated pressure diesel engines converted with the MP48 DF system (diagram 2)



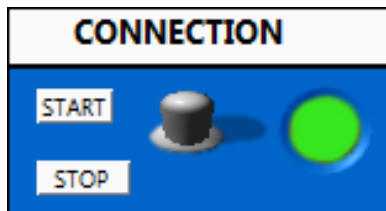
Graphical display and reading of the air-fuel ratio with a linear lambda sensor diesel engines converted or not converted with the MP48 DF system (diagram 3)






The following screen page opens by clicking on the [] icon of the LSU calibration software



In the **COM SETTINGS** menu select the COM port of the computer to which the calibration kit is connected. If no port appears for selection, execute a screen refresh and check the positive and negative connections of the battery and the 12 Volt key on connection.

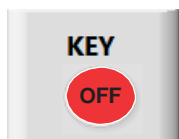


In the **CONNECTION** menu click on selector [] taking it from STOP to START; the LED by the side of the selector indicates if communication between the device and PC is activated [] or deactivated []

Check if the key is in the key on position:



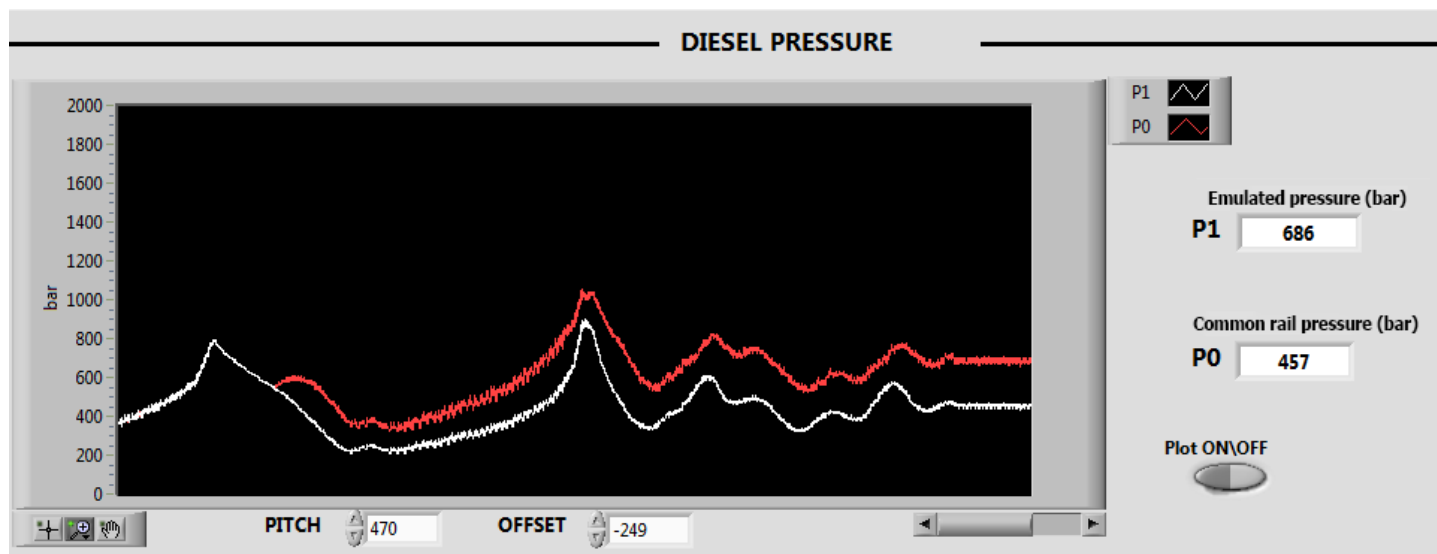
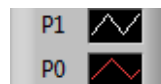
KEY ON means the key is in the key on position.



KEY OFF means the key is not in the key on position.

WARNING: IF THE KEY ON SIGNAL IS MISSING FOR ANY REASON THE INTERFACE DISCONNECTS AUTOMATICALLY.

A screen opens at the top of the calibration software displaying the trend of actual pressure values (P1) and of those emulated by the gas control unit (P0). The two values are represented by differently coloured curves and numerical values in Bar



To display the pressure parameters correctly enter the same values entered in the Diesel pressure sensor Characterisation menu in the **MP48DF** system software, in the **PITCH** [**PITCH**] and **OFFSET** [**OFFSET**] boxes.

Diesel pressure sensor

Type of diesel pressure sensor

Offset

Pitch

Pression emulation speed min. max.

Emulated pressure (bar)

P1


Common rail pressure (bar)

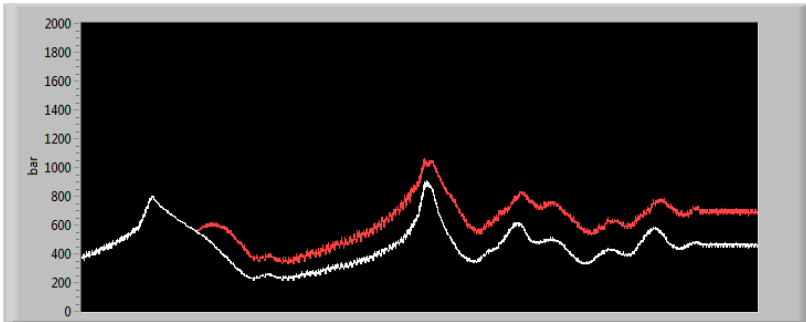
P0

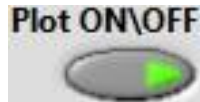
P1: The actual pressure values in the Diesel injectors' common rail are displayed in this field.

P0: The pressure values emulated by the Dual Fuel control unit are displayed in this field.



If the **PLOT ON/OFF** button is on **OFF** [] the graphic pressure display is disabled and only the numerical display remains




If the **PLOT ON/OFF** button is on **ON** [] the graphic pressure display is enabled together with the numerical one

A screen opens at the bottom of the Sw display showing the lambda sensor factor trend [λ 1.0].

Proceed as follows to enable this display:

- Check if the key is in the key ON position




- Connect the lambda sensor (included in the kit) correctly to the interface via the connector (see diagram 1 or 3)
- Click on the [] selector to activate the lambda sensor signals display mode




WARNING: IF THE KEY IS NOT IN THE KEY ON POSITION IT WILL NOT BE POSSIBLE TO DISPLAY THE LAMBDA SENSOR SIGNAL TREND.

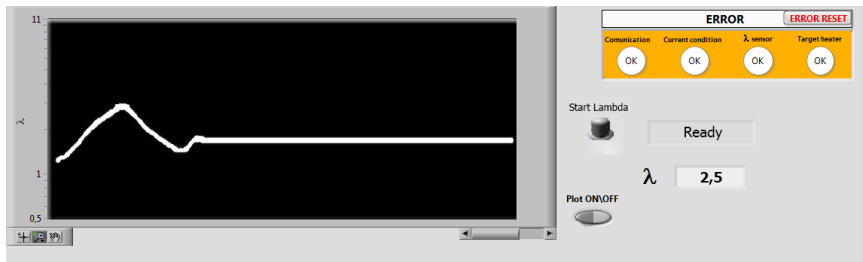
The display phases of the lambda sensor values trend will therefore be the following:




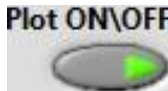
Initial **OFF** phase with the
[] button deactivated



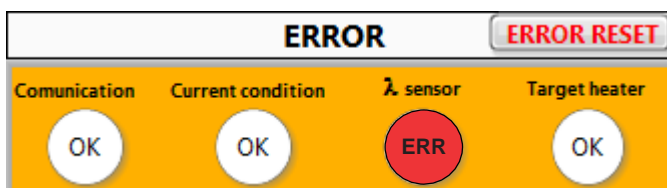
Intermediate **HEATING** phase with the
[] button activated



Final **READY** phase with the
[] button activated

Similarly to what has previously been explained, the **PLOT ON/OFF** [] button enables/disables the graphical display of the lambda sensor values.

When turning the lambda sensor signal display mode off [], the sensor goes through a **COOLING** phase before going to the **OFF** phase



Any diagnostic errors found can be displayed via the **ERROR** screen such as:

Communication: Communication error

Current condition: Power supply error, normally related to there being no key in key on position

sensor: Communication error with the lambda sensor

Target heater: Error caused by the failure of the lambda sensor to reach working temperature

 By pressing this button it is possible to reset all the diagnostic errors found.

WARNING: ONE OF THE POSSIBLE ERROR CAUSES COULD OCCUR WHEN THE VEHICLE IS STARTED BECAUSE BATTERY VOLTAGE DROPS BELOW A CERTAIN THRESHOLD - IN THIS CASE IT WOULD SUFFICE TO RESET CORRECT OPERATION BY RESETTING THE ERROR FOUND.

REPROGRAM

Use the **REPROGRAM** button to update the interface firmware

STOP/EXIT

Use the **STOP/EXIT** button to terminate or exit the calibration software