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INSTRUCTIONS MANUAL for dashboard MOD7 Evo2

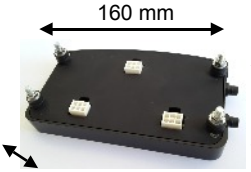
Thank you for purchasing this instrumentation MOD7CE® for your racing car.
We hope you will be pleased to advise you about …
You are eager to try it, so jump to page 3 to begin installation.

The dashboard **MOD7 Evo2 'S'** is the 2018 evolution of the **MOD7 Evo2 'R'** which is an 2017 evolution of the well known **MOD7 Evo1 'R'** born in 2015 !
The evolutions in comparison with the MOD7 Evo1 are graphical.
The dashboard **MOD7 Evo2 'R'** offers a specific analysis mode for rpm and water temp, rather than the dashboard **MOD7 Evo2 'S'** offers a second rpm range for motorcycle engines up to 16000rpm.

Package contents for dashboard MOD7 Evo2 :

- 1 **Dashboard MOD7 Evo2 'R' or Evo2 'S'** equipped with 4 anti-vibrations pads fixing
- 2 looms with a 6 way connector
- 1 Speed magnetic sensor + 1 magnet
- 1 Instructions manual

Technical Specifications of the Dashboard MOD7 Evo2 :



350grs

Using range : 0°C --> 70°C

Sealing : no

Volts

Voltage : 10v --> 15v

Conso : 2,8W (@ 14volts)

Spark plugs with resistance

- **Maximum values :** Memorizes the maximum values of every functions (except gauge) Displays them after the engine shutdown. Possible recall of these max values at power on

- **Tachometer** (main function always displayed)
  Bargraph format from 800 to 9000 rpm (+ 2nd range for Evo2 'S' from 800 to 16000 rpm)
  Digital display from 0 to 9900 (or 16000 for Evo2 'S') rpm with 100 rpm accuracy
  Programmable red zone for the bargraph from 4600 to 9000 rpm (15000 for Evo2 'S')

- **Shift Light** with 5 leds : green x2, red x3
  Sequential turn on and then flashing when all are lighted
  Each led can be programmed to turn on from 3000 to 9900 rpm with 100 rpm accuracy

- **Gear Box Indicator** (main function always displayed)
  '-' or 'N' (no information), '1', '2', '3', '4', '5' or '6'
  Displays after a calculation between tachometer and speedometer

- **Engine water Temperature** (main function always displayed) from 0 to 140°C (+/- 2°C)
  Uses the original sensor of the car or a MOD7 CTN or a VDO 120°C sensors (not supplied)
  Possible adjustment of the displayed value from -30°C to 0 and from 0 to +30°C
  Programmable alert (Red led AL1) from 80 to 130°C

- **Engine oil Temperature** from 0 to 150°C (+/- 5°C)
  Uses the original sensor of the car or a VDO 150°C sensor (not supplied)
  Possible adjustment of the displayed value from -30°C to 0 and from 0 to +30°C
  Programmable alert (Orange led AL2) from 100 to 140°C

- **Engine oil or Fuel Pressure** from 0 to 9.0 bars (+/- 0,1 bar)
  Uses a 10 bars VDO sensor (not supplied) or may use the original sensor of the car…
  Programmable alert (Blue led AL3) from 0.0 to 4.0 bars

- **Fuel Gauge** up to 60 liters
  You need to choose between Fuel Gauge or Voltmeter with a hardware selection pad
  Uses the original gauge of the fuel tank. Programmable by step of 4 liters

- **Battery Voltmeter** from 8.0 to 16.0 volts
  You need to choose between Voltmeter or Fuel Gauge with a hardware selection pad

- **Distance - Speed** up to 250 km/h with 1 km/h accuracy
  Takes information from an 'Ils' sensor, switched by a magnet (all supplied)
  Programmable wheel circumference form 140cm to 230cm
  Trip distance up to 999.9km with manual reset

- **Color 4.3" TFT** with blue background for Evo2 'R' or blue or grey background for Evo2 'S'
  A specific graphic mode for Evo2 'R'

- **Led Alert :** 'STOP' (Red) : connected to the low oil pressure sensor of the engine

Cautions and Warnings :

- The dashboard **MOD7 Evo2** is only reserved for use in racing cars.
  It is not approved for a road use.
- The **dashboard MOD7 Evo2** is intended to be used inside the car (unsealed).
- The **dashboard MOD7 Evo2** is only designed to equip injection powered cars with a non multiplex harness, and equiped with a 12v battery.
  A battery voltage above 16v might cause irreparable damages to the product.
- The **dashboard MOD7 Evo2** needs eventually some sensors witch are not supplied
  At first, you can use the existing sensors of the car (temperature and pressure).
  The displayed values may be incorrect or false but there is no risk to try them.

Safety Warnings for installation and during wiring :

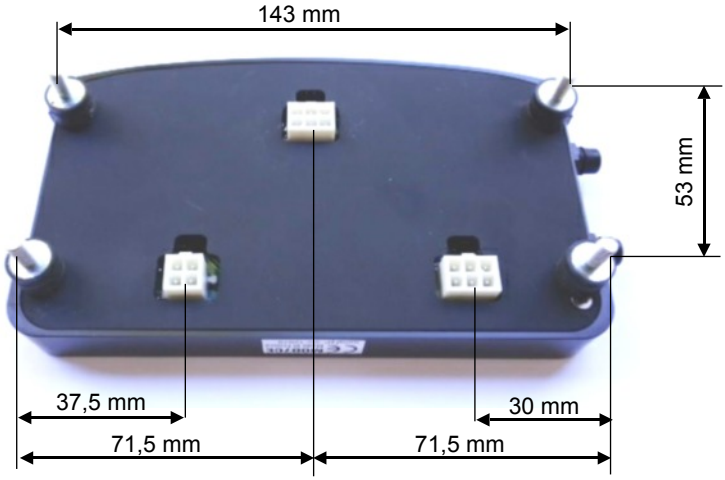
- Switch off the ignition and disconnect the ground terminal of the battery
- Keep the wiring harness far from hot spots of the engine (i.e. temperature)
- Install a fuse of 1 or 2A on the '+' power wire

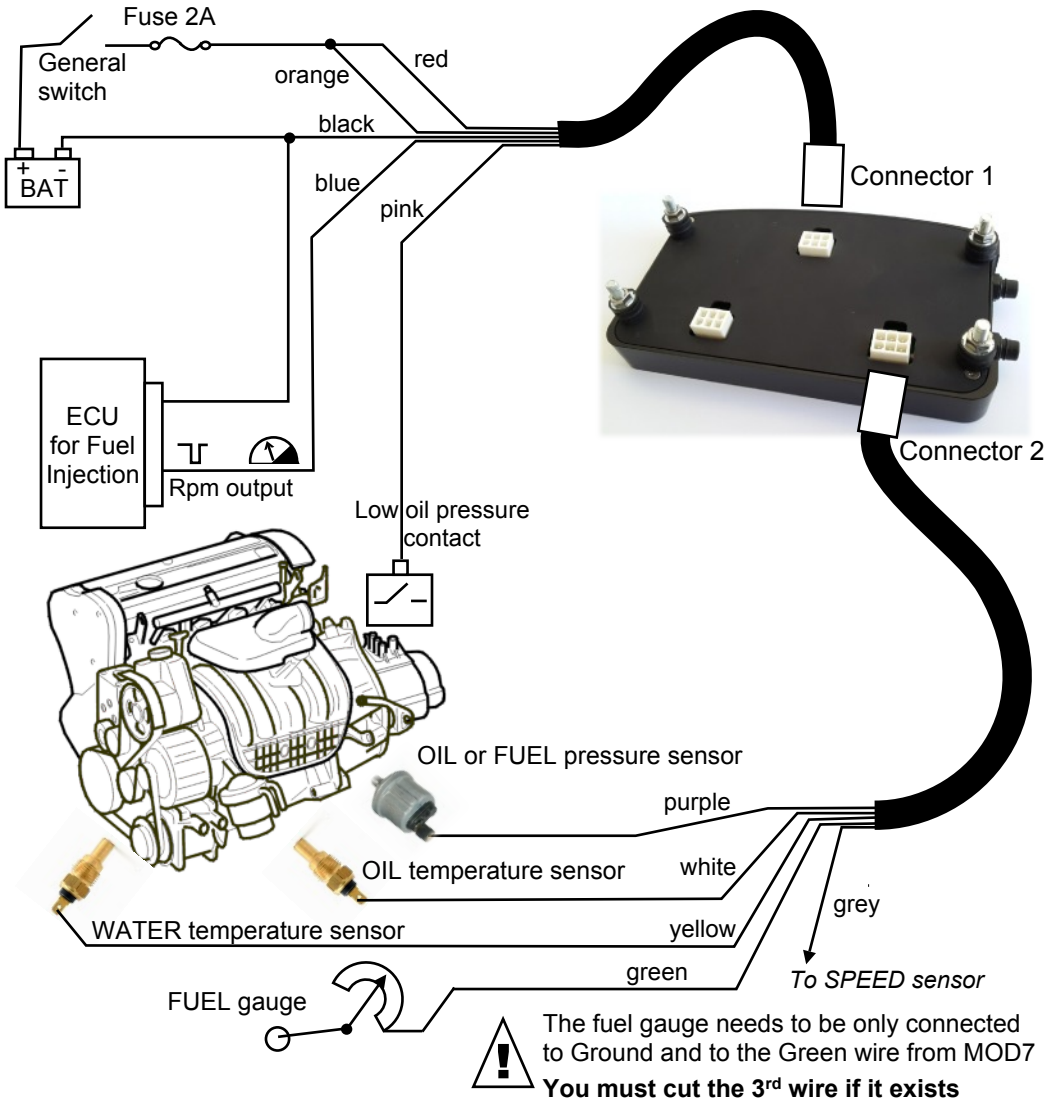
Warnings for reliability :

- Use the mounting system supplied with dashboard ('silentbloc' x4 parts)
- Make sure that the positive power supply will stay below 16 volts
- Do not pull on wires or harness and Do not spray the counter even at low pressure
- Do not open the dashboard

Fixing the Dashboard MOD7 Evo2 :

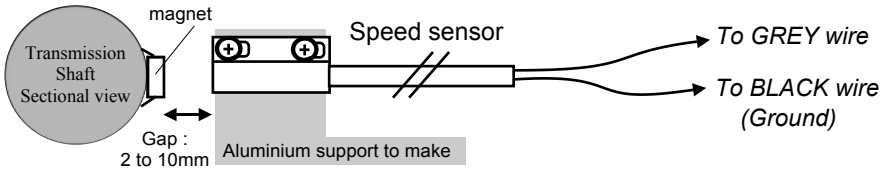
- **Choose** the best place for your **dashboard MOD7 Evo2** in order to see the full screen
  The best place is at the location of the counter if you've the remote control button
  Replace them with a sheet of carbon or aluminium black painted.
  An other good place is directly on the steering column, closer to you.
- **Drill** your support with 4 holes of 5mm diameter for the 4 silentblocs (see picture)
- **Drill** your baseplate or support with 3 holes of 20mm diameter to pass the wires
- **Fix** the dashboard on your support using the 4 silentblocs.





Speed sensor + Magnet :

Warning : *Sensor is fragile. Avoid hitting the sensor during installation*



Wiring of the Dashboard MOD7 Evo2 :

- **Connect** the different wires to the vehicle as shown in the diagram on page 4

- **Insert** and **Lock** at first, the principal connector 1 that provides power
- **Switch on the contact** to check that the dashboard displays the home page (after 4 sec.)
- **Start the engine**. The **dashboard MOD7 Evo2** must display the tachometer
  If the tachometer is not working well (unstable rpm or the leds flashing sometimes even if the engine is running at low speed), then change the wiring for ORANGE & BLUE wires from A - wiring to B - wiring (see below)

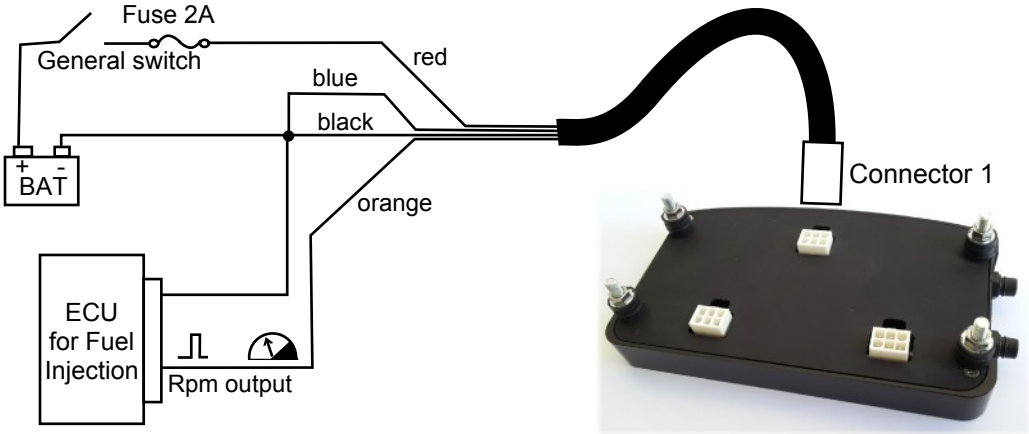
- **Insert** and **Lock** the connector 2 for the analog functions
- **Verify** that the engine water temperature, the oil temperature and pressure are working well.
- **To display the amount of fuel in the tank**, the dashboard must convert the resistance of the gauge sender according to your calibration…

A **- <u>WIRING</u>** (normal case to be tested at first)

For a Rpm output that gives negative pulses (ground pulse)
- **BLUE wire connected to the rpm output of the ECU**
- **ORANGE wire to the +12v** after general switch (like the red wire)

B **- <u>VARIANT WIRING</u>** (if the rpm value remains to 000 or if unstable value)

For a Rpm output that gives positive pulses
- **ORANGE wire connected to the rpm output of the ECU**
- **BLUE wire grounded** (like the BLACK wire)



B **- <u>COIL WIRING</u>**

You can also get the rpm information from the primary of the ignition coil
- **BLUE wire connected to one coil input from ECU**
- **ORANGE wire to the +12v** after general switch (like the red wire)

FUEL GAUGE or VOLTMETER :

Dashboard MOD7 Evo2 displays either the remaining fuel quantity or the voltmeter.
Note : Factory setting is to display the fuel gauge function, except if you've personally asked us for the activation of the battery voltmeter function…

In order to display the voltmeter on the **MOD7 Evo2** :
(In this case, you cannot use the fuel gauge function) :

- **Isolate** the green wire normaly used for the fuel gauge (because it will not serve)
- **Open** the dashboard **MOD7 Evo2** by removing the 4 'silentblocs' and the 2 M3 screws.
- **Locate** the 'jumper' (see the pictures) and slide with a soldering iron, the solder bubble from the right position ('Fuel' on Photo1) to the left position (Photo2)
- **Close** the case of the dashboard **MOD7 Evo2** with its 2 screws and 4 fixation silentblocs.

Photo1 : 'Fuel' setting

Photo2 ; 'Volt' setting

INSTALLATION of the SPEED SENSOR : (see diagram on page 4)

- **Paste** the cylindrical magnet on the half-transmission shaft near the gearbox output. **Use** a good epoxy glue and even a non-metallic clamp.
- **Install** the 'PLA' speed sensor on an aluminium bracket (don't use steel) attached at one end to the engine block.
- **Connect** one of the sensor wires to the GRAY wire of dashboard **MOD7 Evo2**
- **Connect** the other wire to the BLACK ground wire of the dashboard (ground)

SETTINGS of the dashboard MOD7 Evo2 :

When you turn the contact on, the **dashboard MOD7 Evo2** generates an initialization sequence : The display turns on after 4 sec, the bargraph goes up and then down while trying the 5 leds of the Shift Light, your message is displayed during 2sec, then the different functions are displayed.

At this moment, as the engine is stopped, you can access to the setting menu :

• **Push and Hold during 1sec** the 'Config' bottom button.
A special box named 'Config' appears, with the 1st function to be configured and its value.

General action on the 2 buttons while in 'Config' mode :
• **Each short press** on the 'Change Affichage' top button passes to the next parameter
• **Each long press of 1 sec.** on the 'Change Affichage' button returns to the previous parameter

• **Each short press** on the 'Config' bottom button increases the value of the displayed parameter
• **Each long press of 1 sec.** on the 'Config' button decreases the value of the parameter
(only for the shift light rpm parameters and the gearbox parameters)
• **A long press of 1 sec.** on the 'Config' button exits from 'Config' and saves your parameters

1) Programming the beginning of the red zone of the bargraph : **RPM ZONE ROUGE**
• 'Config' increases the value of 100 rpm. After 9000 rpm, it returns to 4600 rpm
For **MOD7 Evo2 'S'** only, after 15000 rpm, it returns to 4600 rpm. This modifies the scale of the bargraph : 1st scale from 800 to 9000 rpm, 2nd scale from 800 to 16000 rpm

2) to 6) Programming the rpm turn on values for leds 1 to 5 : **RPM SHIFT LED1, 2, 3, 4 or 5**
• A short 'Config' pulse increases the value of 100 rpm. After 9900 rpm (on **Evo2 'R'**) or after 15990 rpm (on **Evo2 'S'**), it returns to 3000 rpm
• A long 'Config' action decreases the value of 100 rpm. After 3000 rpm it returns to the max rpm
As each led has its own rpm turn on value, select a gap of 100, 200, 500, 1000 rpm between 2 leds

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7) Select the type of the water temperature sensor : **WATER SENSOR**
• 'Config' passes from 00 (for standart car or MOD7 sensor) to 01 (VDO sensor) and vice-versa

8) Programming the adjustment value for water temperature : **ADJ WATER TEMP**
• 'Config' increases this value of 1°C. After +30°C, it jumps to -30°C and then go to 0°
Before modifying this value : (in normal run mode), you have to run the engine until the fan triggers. At this moment, read the water temperature on the dashboard screen and compare it to the value given in the specifications of your car and calculate the gap to program the adjustment value. Examples : If the normal trigger value of the fan is 92°C and if the dashboard displays 84°C, you must set an adjustment value of +8°C. If the dashboard displays 105°C, you must set -13°C

9) Programming the Alert 1 led (red) : **ALERT WAT TEMP**
• 'Config' increases the alert value of 2°C, After 130°C, it returns to 80°C
Program this alert from 8 to 10°C above the trigger temperature of the fan of the coolant circuit

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10) Programming the adjustment value for oil temperature : **ADJ OIL TEMP**
• 'Config' increases this value of 1°C. After +30°C, it jumps to -30°C and then go to 0°
This value depends on your sensor, your oil and your car. Drive a little before changing it

11) Programming the Alert 2 led (orange) : **ALERT OIL TEMP**
• 'Config' increases the alert value of 2°C, After 140°C, it jumps to 199 or 0, then returns to 100°C
Program this alert from 10 to 15°C above the normal oil temperature
***NOTE :** A programmed value of 199°C (for **Evo2 'R'**) or 0°C (for **Evo2 'S'**) disables the oil temp function from the screen. It's a good thing if you don't have a oil temperature sensor on the car…*

12) Programming the Alert 3 led (blue) : **ALERT PRESSURE**
• 'Config' increases the low pressure value of 0,1 bar. After 4.0 bars it returns to 0
NOTE 1 *: A pressure alert programmed from 0.1 to 2.0 bars enables the display of oil pressure*
A pressure alert programmed from 2.0 to 4.0 bars changes to display an fuel pressure
NOTE 2 *: A pressure alert of 9.9 bars (on **Evo2 'R'**) or 0.0 bar (on **Evo2 'S'**) disables this function from screen. It's a good way to simplify display if you don't have any pressure sensor on the car…*
NOTE 3 *: when fuel pressure is used :*
As this warning led is independent of the 'STOP' warning. Try to program it near 1,2 or 1,5 bars

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13) Programming the tachometer coefficient : **RPM PULSE NB**
• 'Config' increases the value from 2 to 3, then from 3 to 4, then returns to 1, …
Program to 01 if the rpm value is too low with 02, 03 is for a 6 cylinders, 04 is for a V8 engine…
The 02 coefficient is usually used to divide by 2 the pulses from the ECU output to the tachometer

14) Programming the wheel circumference for the speed function : **WHEEL CIRCONF**
• 'Config' increases the circumference of 1cm. After 230 cm, it returns to 140 cm
In order to measure correctly the circumference of a wheel, push the car so that the wheel makes a complete turn and measure the displacement on the ground : It's the circumference to program

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15) Programming the fuel gauge : **FUEL PROG xx L** where 'xx' is the step (in liters) to program.
A short 'Config' pulse memorizes the step displayed with the current 'lsb' value read by the processor.
The step 'xx' goes from 00 (empty tank) to 60 (maximum capacity) by steps of 04 liters.
The 'lsb' value must go from 220-200 (for an empty tank) and decrease to 150-130 (full tank)
A value of 255 lsb indicates an error of measurement : gauge misconnected or bad ground…
• **Empty** the tank **completely** for the 00L step and be sure that FUEL PROG 00L is displayed
• **Pulse** on 'Config' memorizes this first step of 0 liters

• **Pulse** on 'Change Affichage' passes to the next step : 4 liters. FUEL PROG 04L is displayed
• **Add** 4 liters in the tank
• **Pulse** on 'Config memorizes this step of 4 liters

• **Pulse** on 'Change Affichage' passes to the next step : 8 liters. FUEL PROG 08L is displayed
Etc… until you cannot add any fuel in the tank because it is full.

• **Memorise** all the steps from your full tank up to 60L without adding fuel

You can **Push on 'Config' during 1 second** to save parameters and exit from config here…or…

16) Programming the gear box indicator : **GEAR PROG 1, 2, 3, 4, 5, 6**
At first, you have to determine the values to program for each gear of the gear box.
In normal running mode, drive the car at the same rpm on each gear, for example at 3000 rpm
For each gear, record the speed value VR1, VR2, …, VR6, always at the same rpm
Then calculate the coefficient to program R1, R2, …, R6, using the formula : **Rx = Rpm / (2x Vrx)**
For example : R1 = 3000 / (2x30) = 50, R2 = 3000 / (2x51) = 29, R3 = 3000 / (2x70) = 21, …..

When 'GEAR PROG 1' is displayed, program the value R1 you've calculated before (ie : 50)
• Each **Pulse** on 'Config' increases the displayed value for R1 of 1
• Each **Long push** on 'Config' decreases the displayed value for R1 of 1
• **Pulse** on 'Change Affichage' will display 'GEAR PROG 2' in order to program the 2nd gear
Operate the same way to program each gear from 2 to 6…
NOTE : If the gearbox has only 5 gears, then program the 6th gear with the same value as the 5th

• **Pulse** on 'Change Affichage' to return to **RPM ZONE ROUGE**
Then, **Push on 'Config' during 1 second** to save parameters and exit from config.

RUNNING MODE

A) 'Change Affichage' button changes the display format (*only when the engine is stopped*)

MOD7 EVO2 'R'

Full 8 functions

7 functions

only 5 engines functions

Simplified 2 functions

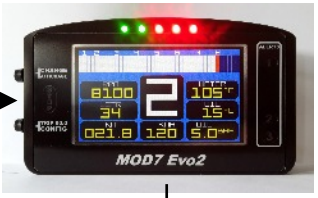
5 road functions

MOD7 EVO2 'S'

Without gearbox indicator

Grey background

Blue background



B) Display of the maximum values :

When the engine is running, the dashboard **MOD7 Evo2** displays the current values
When the engine is stopped, the dashboard displays the maximum reached values and the red led (in the middle of the Shift Light leds) is flashing slowly

These maximum values are memorized even if the contact is turn off
So that, it's possible to recall them when you turn the contact on while pressing the 'Change Affichage' button until the display lights (approx. 4 seconds). The red led is also flashing

Each maximum value remains in memory before a new higher value replaces it.
This new higher value replaces the previous one…
To erase all the maximum value from the memory of the dashboard **MOD7 Evo2**,
• Enter in 'Config' mode and then exit from 'Config' mode.

C) Change the number of active leds of the Shift Light (MOD7 Evo2 'R' only) :

Under the digital value of RPM is a logo like 5 leds and a number.
This number is the number of active leds of the Shift Light : 5 (all of them), 2 (only the red) or 0
• **Press** 'Change Affichage' button during 1 second to change the number of active leds

E) Change your personal home message (MOD7 Evo2 'R' only) :

You have 12 characters to write the name of your car, or your team, or something else…
• **Pulse** on 'Config' when the message is displayed, in the 2 seconds after the bargraph demo returns to 0 to modify the message.
An hyphen '-' appears under the 1st letter of the message.
• **Pulse** on 'Change Affichage' to change the character displayed above the '-'.
You can display 0 1 2 3 4 5 6 7 8 9 (space) + - = . o ° A B … Z, and 'SPORT'
Nota : The word 'SPORT' take 4 consecutive characters after the letter 'Z'.
After the last character of word 'SPORT', the displayed character returns to '0'
• **Press** on 'Change Affichage' during 1 second also change the displayed character but in the reverse direction (for example to pass from 'B' to 'A', or from '9' to '8')
• **Pulse** on 'Config' to pass to the next character of the message and move the '-'.
When the hyphen '-' is pointing the last character at the right end of the screen, a pulse on 'Config' ends the message programming and saves it in memory before restarting the dashboard, as well as if you turn the contact on…
Trick of master : Press on 'Config' during 1 second to display directly the character ' ' (space) above the '-'. This character (space) is placed between the '9' and the '+'.
It is sometimes quicker to increase character from ' ' rather than return character by character…

F) Trip distance :

The trip function adds the distance covered by the car with 100 meters accuracy from 0.0 to 999.9km. It's a usefull function to help you for the maintenance of the racing car !
• A long press on 'Config' while the engine is running clears the trip distance in memory.
NOTE : this action cannot be cancelled !!

GRAPHIC MODE (MOD7 Evo2 'R' only)

• 'Config' button changes the display from classic to graphic and vice-versa
(*only when the engine is stopped*)