

The original XAP dashboard has some very interesting features.

One of the most important, for the owner, is the ability to upgrade it to become a data acquisition logger.

For a full system, it's just necessary to add a loom, two wheels speed sensors with the wheels triggers disks, a beacon receiver, and to upgrade the dashboard software. That's all, the 13 channels low cost data logger is ready.

For an accurate analyse, you can add the XAP 2G sensor, and the XAP steering sensor. Then, all the features of the XAP-Erace software became available.

For more informations the www.xap.fr Web site is for you.

1 First Setup

Here is the process to upgrade the original XAP dashboard, to convert it on a data logger.

1.1 Install the PC software

To install the upgrade PC software, follow wizard instructions who will straightly create a XAP-Dash shortcut in your start/programs folder which will allow you to launch the updating software.



1.2 Plug the download loom

The download loom has to be connected at one end to the PC's com port and at the other to the especially car's download connector located on the left behind the dashboard as shown on picture.



1.3 The programming mode

To reach the programming mode follow these instructions :

- Power OFF the car with the red switch.
- Put the ignition switch ON.
- Push simultaneously the two dash's switches, while you pull the green one (Power ON).
- Release the dash's switches

Then the dashboard displays the programming mode screen.

Programming Mode	187
Bank n°	123
Received	100
Erased	100
Programmed	100

1.4 The upgrading software

The dashboard software can be upgraded by XAP if needed.

2 Dashboard's power on

When the dash is power ON, the XAP logo includes the state of the internal memory dashboard's.

On this example, the dashboard is able to record 18mn of datas, as it's shown on the bargraph.



2 Setup screens

The dashboard's setup includes 5 new screens.

Pulling and releasing at the same time both dash switches while the XAP logo are on the screen allow access to this screen.

The two switches allows selection of the 5 different screens: RPM leds, Logger Setup, Sensor Setup, Logger diag and GPS.

To validate the screen, pull both switches at the same time.

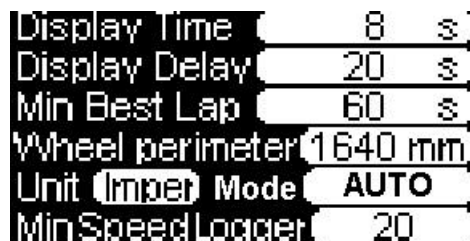
The RPM led's setup is similar to the original dashboard. Refer to the owner's manual for more information.



2.1 Logger Setup screen

This screen allows to validation of the following parameters :

- The lap time screen display time (0 -> 10 s).
- The lap time screen display delay (0 -> 30 s).
- The minimum best lap (0 -> 999 s).
- The wheel speed measurement's unit
- The starting logger mode : Auto or Speed.
- The minimum speed used to start the recording (if the speed starting mode is enabled).



You can only modify these values with the XAP-Erace software, in the dashboard setup panel.

Refer to the XAP-Erace software manual for more information.

To escape from this screen you have to pull both dash switches simultaneously and release.

2.2 Sensors Setup screen

This screen is necessary to calibrate the steering sensor, the G sensors, and to validate the lap timer receiver, and the two wheels speed sensors.

Warning: The dashboard reads the analog inputs (2G sensor, steering) only if they had been validated with the XAP-Erace software, in the dashboard setup panel.

Steering	zero	180	5,8°
G-Sensor	zero	0,58	0,10
LapTime	1	W1	0
		W2	0

To calibrate the steering wheel sensor, follow this procedure :

- Put the steering in the right position (full lock).
- Selecting Zero on the steering line, with the right switch, and pulling the left switch.
- Put the steering in +180° position (left lock).
- Selecting 180 on the steering line, with the right switch, and pulling the left switch.
- Move the steering to validate the readings.

To calibrate the 2G sensor, follow this procedure :

- Put the car on a horizontal place.
- Selecting Zero on the G-sensor line, with the right switch, and pulling the left switch.
- Now, a new reference for lateral and longitudinal G sensor is validated.

The last line display the Lap-Time beacon receiver's and wheels sensor's signals.

If the sensors are working well, the bit will alternate 0 and 1 when the beacon transmitter is front of the receiver, or when the wheels turn.

To escape from this screen you have to pull both switches simultaneously and release.

2.3 Logger diag screen

This screen allow to check if the main sensors for the data logging system had worked well during the last recorded session.

You can read the following value :

- Left pulses : The total pulses recorded for the left wheel sensor.
- Right pulses: The total pulses recorded for the right wheel sensor.
- Spurious Lap : The rejected lap number.
- CAN errors : The CAN error number.
- Power resets : The Power reset number.

Left Pulses	12548
Right Pulses	12588
Spurious Lap	17
CAN Errors	54
Power Resets	89

A big difference between the left pulses number and the right pulses number indicate a problem with the speed measurement hardware (sensors, disks, loom).

An important Spurious Lap number indicate the presence of a no XAP beacon transmitter on the track, or a problem with the lap time measurement hardware (beacon receiver, loom).

An important CAN errors number indicate a problem on the CAN line (Engine ECU, dash, loom).

An important Power Reset number indicate some power dash's cut. Check the loom and the connectors.

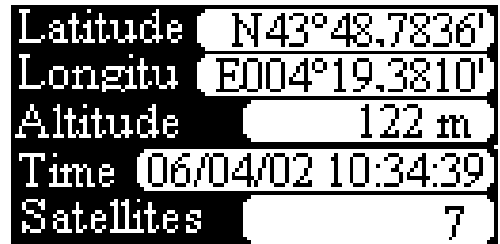
2.4 GPS screen

The GPS is only used to create the track map.

The GPS screen allows checking the GPS before regarding the track map.

If the GPS is working well, you can see on the screen:

- The current latitude position.
- The current longitude position.
- The current latitude position.
- The UTC time.
- The satellite's number received.



3 Normal mode screens

In a normal use, there are four more screens :

- The Pilot 3 screen.
- The Pilot 4 screen.
- The status logger screen.
- The laps times screen.

3.1 Pilot 3 and pilot 4 Screen

This real time display are two new screens dedicated to the driver.

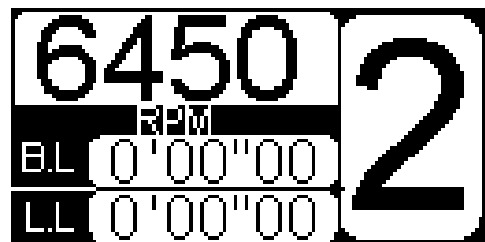
They show the necessary informations as the RPM, the gear number, the best lap time, the last lap time and the speed.

When the ignition switch is ON, only two pilot screens are available for the driver with the dash's switches.

The two screens selection among the four available is possible with the XAP-Erace software, in the dashboard setup panel.

Refer to the XAP-Erace software manual for more information.

The best lap is validated as soon as it's superior to the Min Lap Time value in the logger setup screen. It's erased when the data memory had been downloaded to the PC.



3.2 Status Logger Screen

This screen allows to the user to have more informations about the logger's state :

- Memory free : How many time it's possible to record.
- Memory recorded : How many time are recording.
- Max speed : The maximum speed recorded.
- Nbr Lap : Number of lap recorded.
- Best Lap : The best lap time in memory.

Memory free	25 mn
Memory recorded	65 mn
Max Speed	178
Nb of Lap	14
Best lap	1'54"89

3.3 Lap Time Screen

The lap time screen display all the lap time recording on the logger.

The best lap time number is inverted for a quick reading. This best lap is validated as soon as it's superior to the Min Lap Time value in the logger setup screen

The two dash's switches allows to move up or down in the lap timer list.

Quit this screen by pulling at the same time both dash's switches.

1	1'34"27	2	1'35"01
3	1'34"38	4	1'35"10
5	1'34"56	6	1'35"12
7	1'34"10	8	1'34"48
9	1'35"03	10	1'34"30

4 Temporary Lap Time Screen

When the car passes front of the lap timer beacon, the lap time is display on the dashboard.

If the beacon is for the split time, the performance screen displays the comparison with the best lap in memory.

The display time for this screen can be modify between 0 /10 s.

Too, it's possible to fixe a delay, between 0 and 30 s, to show the temporary lap time screen after the passage front of the lap timer beacon. This feature is very interesting specially when the beacon transmitter is just before a corner.

A time can be validated as the best time only if it's superior to the minimum best lap value.

The lap time screen value, lap time screen display value and the minimum best lap value are set with the XAP-Erace software, in the dashboard setup panel.

Refer to the XAP-Erace software manual for more information.

All these values can be check in the logger setup screen, seen before.

5450	4
1'34"23	
BEST LAP	

5450	4
+ 0.12	
Performance	

5 Download Screen

This display inform the driver that the car's loom is connected to the PC.

So any start with the car is prohibited.

