Yamaha R1 and R6 MyChron 3 Plus Gold Plug and Play kit

KIT DESCRIPTION

The kit for **Yamaha R1-R6** is composed of the following objects:

- **MyChron 3 Plus** or **MyChron 3 Gold.**
- Plug and play wiring for **MyChron 3 Plus** or **MyChron 3 Gold.**
- Installation kit including: 1 bracket, screws, anti-vibration mountings, washers.
- Gyroscope (optional – available for **GOLD** version only) needed to track maps.
- CD-ROM including **Race Studio 2** software.
- Documentation.

The kit for **Yamaha R1-R6** has been developed for the following cubic capacities: 600 cc and 1000 cc. Please refer to the following table to understand which Yamaha R1-R6 is supported by our kit.

Cubic capacity (cc)	Year 2003	Year 2004
R6 - 600	√	√
R1 - 1000	√	●

√ = supported

● = NOT supported

MyChron 3 Plus / Gold - Yamaha R1-R6 version has been designed and developed to be a "plug and play" system you can connect to the "on-board" wiring.
The aim of this kit is to merge the functionalities of the stock dash together with these of a professional data acquisition system.

MyChron 3 Plus / Gold - Yamaha R1-R6 version may be used both on track (lap times, split times, engine parameters, gyroscope to track maps) and on street (odometer, water temperature, oil pressure alarm, fuel level).

The gauge, as the stock dash, is powered by the bike's master switch. Moreover, when installing your **MyChron 3**, you do not have to cut, bend or drill anything: each component of the kit has been designed to be plug and play.

The gauge has to be connected to the standard head light using the bracket supplied with the system. The bracket is made in grey anodized Ergal, so to be lightweight and mechanically resistant.

GENERAL NOTES – Read this before installing the system

- This installation manual has been written using photographs made during **MyChron 3** installation on a **Yamaha R6** bike. This is the reason why you can find slight differences in the screws, connectors positions if you are installing your **MyChron 3** on a **Yamaha R1** bike.
- Do not cut any wiring: the wiring supplied with the kit is plug and play.
- Please, be careful not to damage the on-board connectors when plugging / unplugging them. In the following pages is described how to correctly manage them.
- Do not install the system when the engine is hot. The on-board connectors are quite near to the engine and you can burn yourself.
- The space under the gas tank is quite confined: be careful not to hurt yourself when plugging and unplugging the connectors. **If necessary, please remove the gas tank in order to have a wider available space**.
- Be careful not to loose screws and washers.
- Do not damage the fairing when installing / uninstalling it.

INSTALLATION STEP # 1 –Removing the seat and uplifting the gas tank.

The first installation step consists in removing the seat and uplifting (or removing) the gas tank. The seat is fixed to the bike with two screws located under it, whose location is highlighted by two arrows in **Figure 1**. Please unscrew the 2 screws and remove the bike seat.

Figure 1: location of the seat screws.

The gas tank is fixed to the bike chassis with two Hex screws; please remove them. In **Figure 2** you see the location of the screws and how to remove them.

Figure 2: unscrewing the gas tank screws.

Once removed the 2 hex screws, you may uplift the gas tank using the bracket supplied with the bike's standard equipment.

Once uplifted the gas tank You should be able to work properly. Anyway, if you prefer, you can remove it to have more space to work. **Please refer to the bike user manual to know how to remove the gas tank.**

Figure 3: Uplifting the gas tank.

INSTALLATION STEP # 2 – Removing the right fairing.

To install **MyChron 3 Plus /Gold** you have to remove the right lateral fairing. Of course you can also choose to remove both lateral fairings. Anyway here below You see the location of all the screws on the right lateral fairing. Location of screws on the left one is the same, but specular. **Please remember: figure 4 shows a Yamaha R6 bike**.
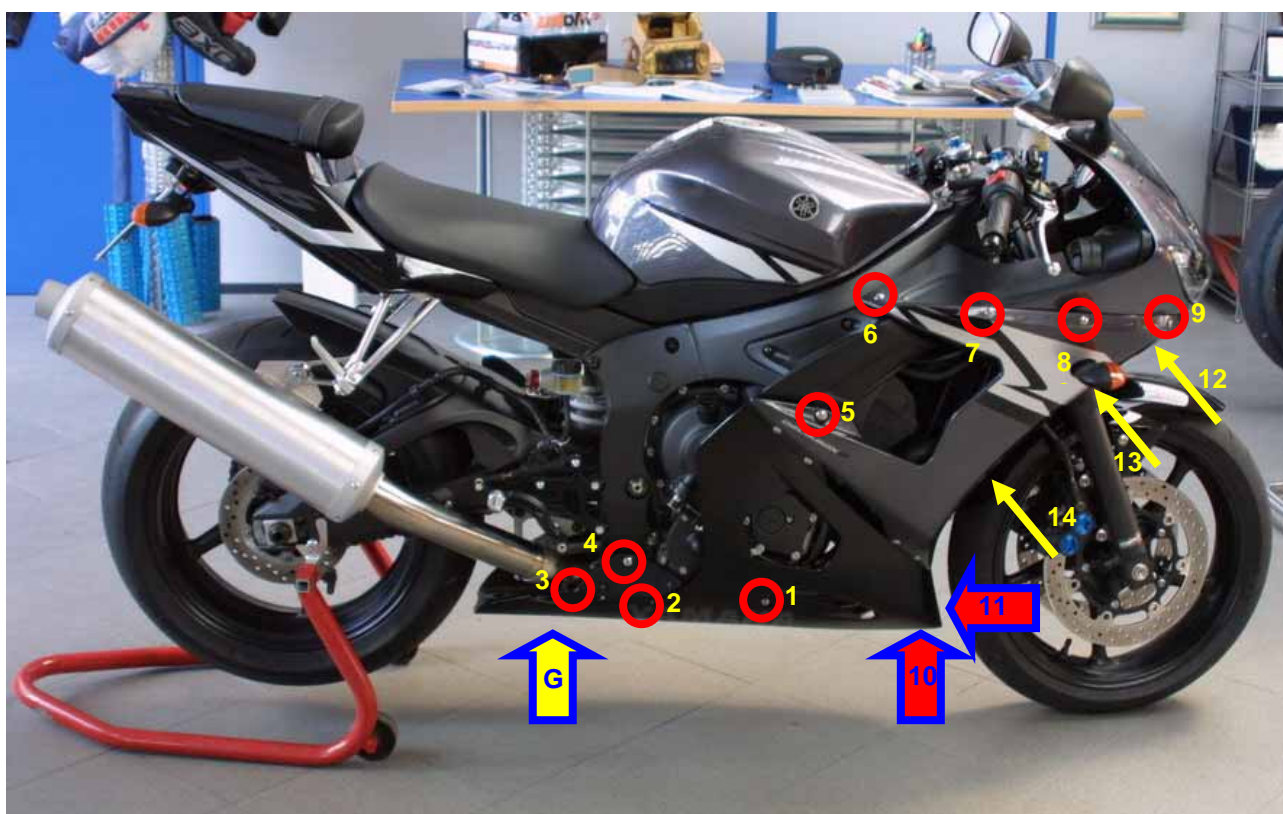

Figure 4: Location of the lateral fairing screws and fairings groove point.

The second installation step consists in removing all the screws highlighted in the photo here above and unthread the two lateral fairings.

Please note:

- the yellow arrows indicate three clips that you can see only looking the bike frontally.
- the red and blue arrows, labeled as **"10"** and **"11"** indicate two particularly positioned screws
- the yellow and blue arrows labeled as **"G"** indicate a point where the lateral fairings are grooved (G) and not screwed together (see following pages).

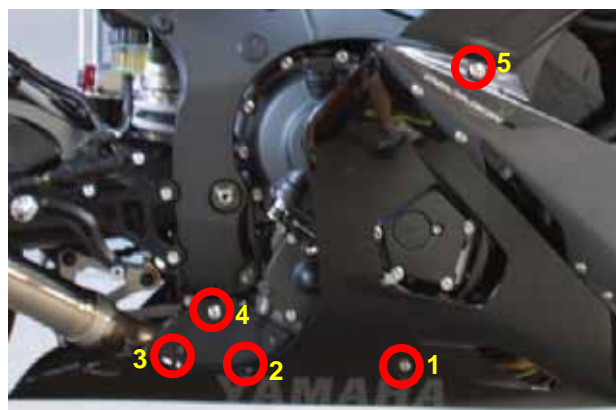Please unscrews screws from **1** to **5**, red circled in **Figure 5**.

Figure 5: location of screws from 1 to 5

Please unscrews screws from **6** to **9**, red circled in **Figure 6**

Figure 6: location of screws from 6 to 9

As you can see in **Figure 7**, under the bike are two screws. The first one, labelled as **10**, is screwed into a metal cut threads clip fixed to the right fairing, while the second, labelled as **11**, is screwed horizontally into the lateral fairings so to fix them together and to the radiator protective fairing too. Please unscrew them.
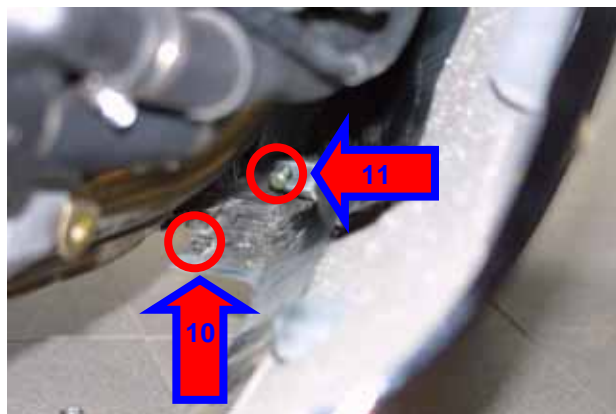

Figure 7: location of screws 10 and 11 (internal view).

As you can see in **Figure 8** and **Figure 9**, under the head-lights (looking the bike frontally), are three clips, labelled as **12**, **13** and **14**, that should be removed.

Figure 8: location of clips 12 and 13

In **Figure 9** is red circled the clip labelled as **14**.
To remove a clip, please, insert a tip in its central hole and press until You hear a click. Then remove it using a flat screwdriver: insert it under the clip and rotate it.
Remember to repeat this proceeding for the three clips.

Figure 9: location of clip 15

As shown in **Figure 10**, the lateral fairings are not screwed together, but grooved with two hooks, shown in **Figure 11**.
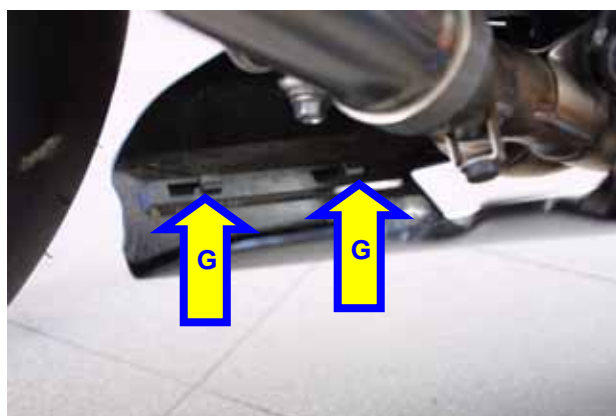

Figure 10: fairings grooving point (internal view)

The hooks shown in **Figure 11** connects the two lateral fairings.
Please be careful to well fix the two hooks that connect the two lateral fairings when re-mounting them.

Lateral fairings grooving hooks

Figure 11: Lateral fairings hooks

To separate the two fairings, unthread them as shown in **Figure 12** and remove the right lateral fairing.

Figure 12: Slackening the groove of the lateral fairings

INSTALLATION STEP # 3 – Unplugging the turn signal connector and removing the front transparent fairing.

The third installation step consists in unplugging the turn signal connector, removing the lateral mirror and the front transparent fairing. Before unplugging the turn signal connector, please remove the little protective chassis located over the lateral fairing. In **Figure 13** are red circled the screws that fix this chassis to the bike. Please unscrew them. This is useful to allow you inserting your new wirings.

Figure 13: location of the screws of the protective chassis.

In **Figure 14** you see the connector that makes the turn signal working. It has a little clip on its top, please press it and then unplug the connector as in the figure on the right.

Figure 14: the turn signal connector.

The lateral mirror is fixed to the front chassis with two screws, that you can reach from the internal side of the chassis; they are red circled in **Figure 15**. Please unscrew them and remove the lateral mirror.

Figure 15: location of the left lateral mirror screws (inside view).

The front transparent fairing is connected to the head-light chassis with four screws whose location is red circled in **Figure 16**. **Please note:** in **Figure 16** the screws have already been removed.

Figure 16: the front transparent fairing screws.

The four screws that fix the front transparent fairing to the bikes chassis are Phillips Recess ones. Please unscrew them, as in **Figure 17**, and remove the front transparent fairing.

Figure 17: unscrewing the transparent fairing screws

INSTALLATION STEP # 4 – Unplugging the on board connectors and removing the stock dash

The fourth installation step consists in unplugging the "on-board" connector and removing the stock dash.
On the back of the stock dash, protected by a plastic cover, is the 16 pins AMP connector.
As shown in **Figure 18**, please remove the protective plastic cover, push down the locking tongue (highlighted with an arrow) and pull out the connector from the dashboard.

Figure 18: unplugging the on board dash connector

The stock dash is fixed to the bike with 3 screws located on its back and red circled in **Figure 19**, while the stock wirings are connected to the stock dash with a 16 pins AMP connector, highlighted with an arrow in **Figure 19**. Please unscrew the screws and unplug the AMP connector.

Figure 19: Location of the stock dash screws.

Figure 20 shows the bike without the stock dash. In the photograph are yellow circled the three holes where your **MyChron 3 Plus / Gold** has to be fixed to the bike.

Figure 20: the stock dash has been removed

INSTALLATION STEP # 5 – Assembling the kit.

The fifth installation step is assembling the kit for **Yamaha R1-R6**.
The kit You receive, has already mounted the four anti-vibration mountings on the back of your **MyChron 3 Plus / Gold**;
Install your **MyChron 3 Plus / Gold** on the aluminium bracket fixing the bracket to your **MyChron 3** in correspondence of the 4 anti-vibration mounting and using 4 screws and 4 Grover washers.
Figure 22 shows the correct assembly of **MyChron 3**, bracket and washers (rear view). Points highlighted in the figure are:

- in **red** the four connection point where **MyChron 3 Plus / Gold** is fixed to its bracket (supplied with the kit)
- in **yellow** the three holes where the screws used to fix the system to the bike have to be inserted.

Figure 21: MyChron 3, bracket – rear view

INSTALLATION STEP # 6 – Wirings connection.

The sixth installation step consists in installing **My**Chron **3 Plus / Gold** wiring.
Please note: water temperature connectors and speed one have to be connected a part as shown in **Figure 22**.
We would suggest to:

- let the new wirings pass along the right side of the bike
- insert them in the space under the little chassis you removed before (Figure 13), as in **Figure 22**.

Figure 22: installing the water temperature and the speed connectors.

The on board speed connector, red circled in **Figure 23**, is a white connector and is located over the engine carter placed on the right side of the bike.
Please be careful, because the available space is really small.

Figure 23: the on board speed connector.

Figure 24 shows the engine carter (red circled) and the arrows indicate the point behind where the white on board speed connector is located.

Figure 24: location of the on board speed connector

The on board **water temperature connector** can be green, as the one in **Figure 25** or grey and is very deeply hided down on the bottom right side of the bike. **Please note: if you cannot reach it, we suggest you to remove the bike gas tank**.

Figure 25: the on board water temperature connector

INSTALLATION STEP # 7 – Installing the kit.

The seventh installation step consists in installing the kit.

Once the connector has been correctly installed, please place the black anodized aluminium box between the bracket and the headlight.
Once the channels interface box has been correctly installed, you may mount the assembled kit on the head light.

Figure 26: the aluminum box.

To fix **MyChron 3 Plus / Gold** to the bike, please use screws and washers supplied with the kit and screw them in the holes yellow circled in **Figure 21**, as shown in **Figure 27**.

Figure 27: fixing **MyChron 3 Plus / Gold** to the bike.

Figure 28 shows **MyChron 3** fixed to the bike. Fixing points are yellow circled in the figure and **MyChron 3** connector is not connected yet.

Figure 28: MyChron 3 correctly installed (rear view)

PLEASE NOTE: before re-mounting the fairing, the mirror, the seat and the gas tank, we suggest You to turn on the bike in order to check the system's integrity and its correct working.

FIRMWARE FOR MYCHRON 3 PLUS / GOLD YAMAHA – 2002 – 2003 - 2004

As your **MyChron 3 Plus / Gold Yamaha** has been designed both for street and track use, and as the information the driver wants to display are different for street and track use, your **MyChron 3 Plus / Gold Yamaha** is equipped with a special firmware version which provides you a **second virtual dashboard**.

When you are driving on a street, the display is set to **"street mode"** and shows the following parameters:

- RPM graphical bar: settable upper limit;
- RPM digital value / Battery voltage: upper right corner (button **VIEW/QUIT** to switch between the two);
- Total non-resettable odometer / Speed in the lower right corner (use button **>>** to switch among odometer and speed);
- Partial resettable odometer: upper left corner;
- Water temperature: lower left corner.

Once you start running on a track and your gauge triggers a lap (you pass in front of a switched-on lap transmitter), the display automatically switches to **"track mode"** and shows the following parameters:

- RPM graphical bar: settable upper limit;
- RPM digital value / Battery voltage / Speed: upper right corner (**VIEW/QUIT**);
- Lap / split times in the lower right corner (use button **>>**);
- Oil pressure in the upper left corner;
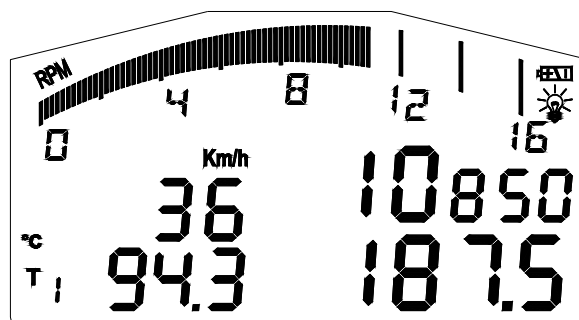- Water temperature: lower left corner.
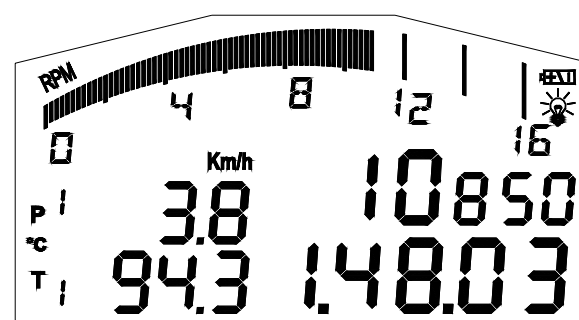

Figure 31: Street display

Figure 32: Track display

In order to step back from **"track mode"** to **"street mode"**, please switch off the gauge and then re-switch it on. The gauge sets automatically to **"street mode"**.

NOTE: for further information concerning the display management and its configuration, please refer to the MyChron 3 Plus / Gold / Gold XG user's manual.

MYCHRON 3 PLUS / GOLD YAMAHA CONFIGURATION [RACE STUDIO 2]

Your **MyChron 3 Plus / Gold Yamaha** may be interfaced with the PC in order to:

- download the data stored in the internal memory;
- upgrade the gauge's firmware;
- configure the gauge.

Once you buy a **MyChron 3 Plus / Gold Yamaha**, it already includes a configuration properly developed for your Yamaha bike: all sensors, calibration curves, engine parameters, speed parameters, etc… have already been set to a default value which guarantees you the possibility to plug in the input cable and start running.

Anyway, if you wish to change, for instance, the RPM upper value or the shift lights, if you wish to add a potentiometer sensor or a gyroscope on your **MyChron 3 Gold Yamaha** and you need to calibrate them, if you change the crown or the pinion with a "different teeth number" one, you need to use our software **Race Studio 2**.

The CD-ROM including software, USB drivers, installation documentation and user's manual is included in the **MyChron 3 Plus / Gold Yamaha** kit. If you have any doubt concerning the software or the USB drivers installation, please refer to the installation manual included in the CD-ROM.

The following table shows the input channels for both **MyChron 3 Plus** Yamaha and **MyChron 3 Gold** Yamaha.

Please note that **MyChron 3 Plus** has no free input channels (i.e. the 4 input channels are sampled from the "stock" wiring and there are no "free cable-connectors" for external sensors), while **MyChron 3 Gold** has 3 free input channels and a gyroscope input which need to be configured and calibrated using the software **Race Studio 2**.

MyChron 3 Plus Yamaha		**MyChron 3 Gold** Yamaha	
Ch. 1	Water temperature	Ch. 1	Water temperature
Ch. 2	Oil pressure switch	Ch. 2	Free input channel – use Race Studio 2
Ch. 3	Fuel level	Ch. 3	Free input channel – use Race Studio 2
Ch. 4	Turn signal	Ch. 4	Free input channel – use Race Studio 2
		Gyroscope	Use Race Studio 2

In order to correctly configure your gauge and to easily use **Race Studio 2**, please follow these instructions.

Run **Race Studio 2** and select the "M3 Auto - Moto Plus / Gold / XG" pushbutton in the buttons toolbar.
Press button "System manager" and then "New" button: the screenshot shown in **Figure 33** is prompted.

Please, set all the configuration parameters (Logger type, vehicle name, speed, temperature and pressure unit of measure) and then press button OK.

Figure 33: Race Studio 2 – New configuration

Once pressed OK button, the System manager window is prompted on your monitor, as shown in **Figure 34**.
In order to correctly configure the input channels, please select a configuration among the available ones (in **Figure 34**, for instance, there are 4 available configurations: the yellow-highlighted is the selected one) and press button "Channels".

Figure 34: Race Studio 2 – System manager window

The screenshot in **Figure 35** is prompted.

MyChron **3 Plus** Yamaha.

This Logger has no input channels, so this page is just a summary and you can change nothing.

MyChron **3 Gold** Yamaha.

This logger has three free input channels (CH. 2, CH. 3 and CH. 4). Clicking in the correspondent cell (row "CH_2", "CH_3", "CH_4" column sensor type) you can choose in a long list of predefined sensors or set a custom sensor, selecting "Custom sensor manager". Moreover you can set channel name and sampling frequency.
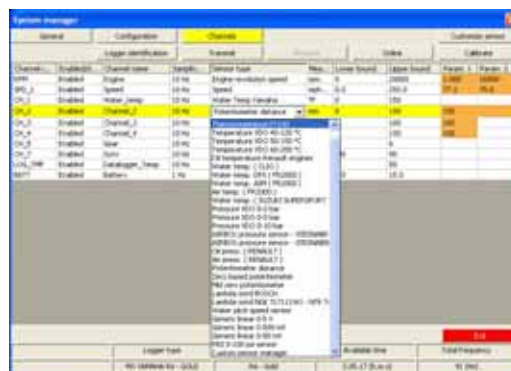

Figure 35: Race Studio 2 – Channels window

When all sensors have been set, please press "Configuration button".

Configuration window, shown in **Figure 36**, allows you to set shift lights and alarm treasure value, to change the unit of measure, to modify speed parameters, etc…

Figure 36: Race Studio 2 – Configuration window

1) Speed:

The speed sensor on your Yamaha bike is installed on the jackshaft that connects the gearbox to the pinion. The number of magnets installed on the jackshaft is **78** for **Yamaha R1** and **75** for **Yamaha R6**.

The wheel circumference written in the proper cell is an "equivalent circumference" calculated using the following formula:

$$Equiv\ Circumf = \frac{Wheel\ Circumf * N_p}{N_c}$$

N_p = Pinion teeth number - N_c = Crown teeth number

Using the default values for crown/pinion teeth number and wheel circumference, the equivalent circumference is **1980 mm** (**77.95 inches**) for **Yamaha R1** and **1960 mm** (**77.16 inches**) for **Yamaha R6**.

2) Shift lights:

The values described in the 5 cells may be modified by in order to switch on the led at the desired RPM value. The 5 default values are the proper ones for a **Yamaha R1 1000 cc** and for a **Yamaha R6 600 cc**.

3) RPM:

Please, DO NOT modify the "Multiply factor" (the default value is **/1**).

In order to change the RPM scale upper limit, please select the desired value among the 7 default ones.

4) Channel 1 Alarm:

As previously described, channel 1 is used to sample water temperature.

The alarm for channel 1 is defined as a "Maximum alarm", i.e. the led is switched on when water temperature is higher than the threshold value.

The default value is **90 °C** that corresponds to **194 °F**. **Please note**: if you are using **°F** unit of measure you have to manually insert the °F value corresponding to °C value.

5) Channel 2 Alarm:

If you have a **MyChron 3 Gold** **Yamaha**, you may set the proper threshold values corresponding to the sensor you have installed on channel 2.

If you have a **MyChron 3 Plus** **Yamaha**, the 2nd channel is used for oil pressure switch. Please, do NOT modify the threshold values. The default values for this alarm are:

- HIGH $\rightarrow$ LED: none $\rightarrow$ Value: 0
- LOW $\rightarrow$ LED: 2 $\rightarrow$ Value: 2

6) Channel 3 Alarm:

If you have a **MyChron 3 Gold** **Yamaha**, you may set the proper threshold values corresponding to the sensor you have installed on channel 3.

If you have a **MyChron 3 Plus** **Yamaha**, the 3rd channel is used for fuel level. Please, do NOT modify the threshold values, otherwise you might run out of petrol. The default values for this alarm are:

- HIGH $\rightarrow$ LED: none $\rightarrow$ Value: 200
- LOW $\rightarrow$ LED: 3 $\rightarrow$ Value: 100 (corresponding to 4 litre – 1 gallon)

7) Channel 4 Alarm:

If you have a **MyChron 3 Gold** **Yamaha**, you may set the proper threshold values corresponding to the sensor you have installed on channel 4.

If you have a **MyChron 3 Plus** **Yamaha**, the 4th channel is used to turn signal. Please, do NOT modify the threshold values, otherwise you might not see the turn signal on the display. The default values for this alarm are:

- HIGH $\rightarrow$ LED: 4 $\rightarrow$ Value: 400
- LOW $\rightarrow$ LED: none $\rightarrow$ Value: 0

8) Gear sensor:

Yamaha plug & play kit allows you to sample the gear directly from an "on-board" neutral sensor installed inside the gearbox. To allow your **MyChron 3** sampling the gear, please do NOT modify the gear sensor default configuration, that is set to **calculated with neutral signal**.

Please note: if you notice that engaged gear number shown on your **MyChron 3 Plus / Gold** gear display does not correspond to the really engaged gear, you need to re-start gear calculation procedure. Please refer to you **MyChron 3 Plus /Gold** user manual to get further information concerning the gear calculation procedure.

Once you set the desired input channels on your MyChron 3 Gold Yamaha and/or you set the desired threshold values for the alarm led of the shift lights, you have to transmit the configuration to the logger: to do so, please press OK button and then "Transmit" button on the next screenshot.

ATTENTION: before transmitting the configuration, please ensure that the logger is switched on and connected to a switched on PC as shown in **Figure 37**.
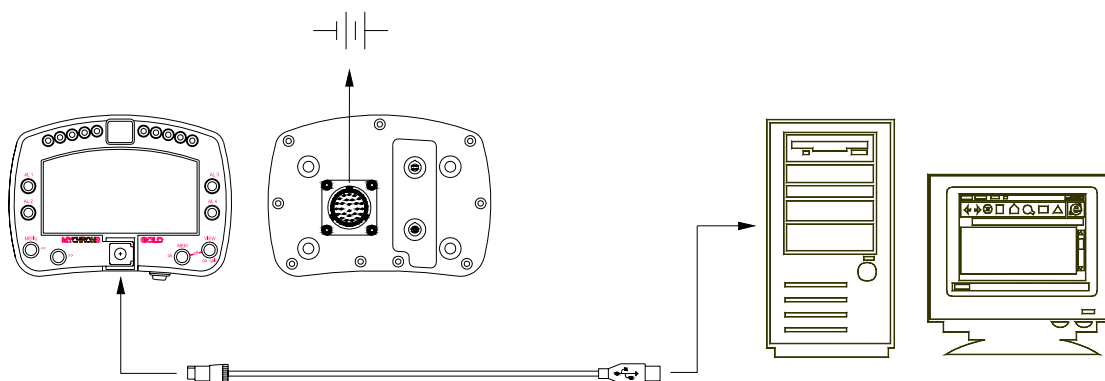

Figure 37: How to connect the logger to the PC

MyChron 3 Plus Yamaha owners:
Once you modified the desired configuration parameters and you transmitted the configuration, your logger is ready for street and track use.

MyChron 3 Gold Yamaha owners:
If you have installed a gyroscope (to map tracks) and/or a fork travel potentiometer (or a rear shock travel potentiometer), these sensors have to be calibrated to sample correct data. Please click on "Calibrate" button: the screenshot shown in **Figure 38** appears.

The sensors are divided in 2 categories: the "to be auto-calibrated" sensors and the "to be calibrated" ones.

Figure 38: Race Studio 2 – Calibration window

The "to be auto-calibrated sensors" are:
- Gyroscope
- Potentiometer distance

The "to be calibrated sensors" are:
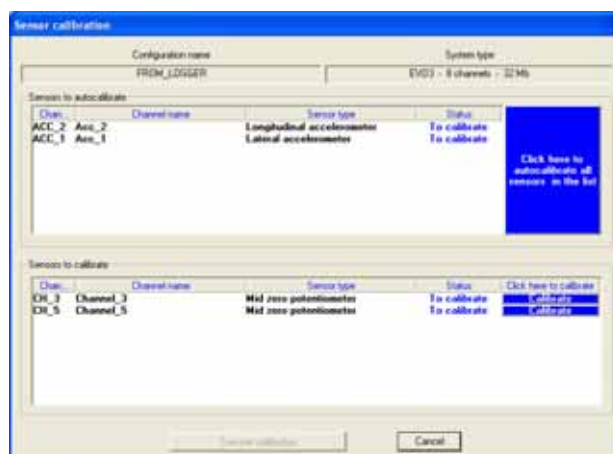- Zero based potentiometer
- Mid zero potentiometer

Please, refer to the user's manual for further information concerning the calibration / auto-calibration procedure.
Once finished calibrating/auto-calibrating the sensors, you have to transmit the configuration to the logger pressing button "Transmit calibration" inside the "Sensor calibration" window.
Now your logger is ready for street and track use.

"SOFTWARE – FIRMWARE" INFORMATION , MAINTENANCE

ATTENTION: This documentation was written using the following versions of software and firmware:

- **Race Studio 2** – **Version 2.20.08**
- **MyChron 3 Plus / Gold** – *Firmware version* **5.07**

Your **MyChron 3 Plus** **Yamaha R1** – **R6** does not need any special maintenance. Once that adequate care is taken of display unit and components, the only required maintenance is periodical software and firmware upgrading.

To know if a new software / firmware version has been released by *AIM*, please connect to our website www.aim-sportline.com and go to "Software Download" page. If a new software / firmware version has been released, please download and run it and then follow carefully the instruction prompted on your Pc monitor.