AiM Infotech

Plug&Play Kit
Suzuki GSX-R 1000 2007
Suzuki GSX-R 600/750/1000 2008

Release 1.05

Plug&Play Kit
Suzuki GSX-R 1000 2007
Suzuki GSX-R 600/750/1000 2008

User Manual

AiM

Racing Data Power

SUMMARY

PRESENTATION

AIM: a world leader in data acquisition for racing applications.

Established in 1976, AIM is now world leader in the production of high performances data loggers for racing applications: dashboards, data loggers, digital displays, lap timers.

AIM set new standards in various motor sports: from karts to bikes, Dragsters, Formula 1 Boat, Offshore and even snowboard!

AIM products merge the functionalities of traditional tachometers, RPM indicators, temperature, pressure and lap timer, with compact units, high performing and easy to use. Different product for different applications but with one shared characteristic: the great innovation.

Each AIM system is completely designed, realised and tested by its technicians. The research and development board includes electronic and mechanical engineers, physics and other specialists that develop firmware, software, hardware and the related documentation. Our reputation is build on quality products, innovative technology and on the steady engagement in customer support.

Introduction

MXL Plug&Play kit for Suzuki GSX-R600/750/1000 K7-K8 is the dashboard (with data logger function in Pista and Pro05 version), designed for easy and quick installation. With the minimum effort it is possible to connect directly to the bike ECU and show - without installing any additional sensor and depending on the model:

MXL Strada	MXL Pista	MXL Pro05
• RPM • Speed • Oil pressure alarm • Fuel level alarm • Turning lights • High Beam • Engaged gear • Water temperature • ECU mapping • 4 free channels	• RPM • Speed • Oil pressure alarm • Fuel level • Engaged gear • Water temperature • ECU Mapping • Lateral Accelerometer • 6 free channels	• RPM • Speed • Oil pressure alarm • Fuel level • Engaged gear • Water temperature • ECU Mapping • Lateral Accelerometer • 10 free channels

The logger - like the stock dash - is powered by the bike master switch.
MXL Strada, **Pista** and **Pro05** kits for GSX-R1000 K7-K8 have been developed for the following bike models:

Displacement	Year 2007	Year 2008
600	See manual K5	√
750	See manual K5	√
1000	√	√

√= supported

Warning MXL Pro05 is only compatible with Suzuki GSX–R1000

Note: thanks to the infrared transmitter/receiver (included in **MXL Pista** and **MXL Pro05** kits, optional to **MXL Strada** kit), it's possible to show/record lap times.

For anything not expressly explained in this manual, refer to **MXL** and/or **Race studio Configuration** user manuals.

1 – Plug&Play kits content

Plug&Play Suzuki GSX-R1000 K7-K8 kits differ depending on **MXL** version. Each kit includes only some of the items shown here above.

MXL Strada kit:

N.1 – MXL Strada (1)
N 1 – Suzuki K7 interface wiring for MXL Strada (2)
N 1 – MXL USB cable (6)
N 1 – Leaflet (7)
N 1 – Race Studio 2 Software Cd (8)
N 1 – Bracket kit (9) including:

      n°1 – bracket for MXL
      n°2 – spacing collars for Suzuki GSX-R
      n°4 – M4 *6 Philip recess screws
      n°2 – washers for M5 screws
      n°2 – Philip recess cup head M5*20 screws
      n°1 – black EPDM washer

MXL Pista Kit:

N.1 – MXL Pista (1)
N 1 – Suzuki K7 interface wiring for MXL Pista (2)
N 1 – Infrared transmitter (3)
N 1 – Infrared receiver (4)
N 1 – Transmitter power cable (5)
N 1 – MXL USB cable (6)
N 1 – TPS cable (throttle position sensor) (10)
N 1 – Leaflet (7)
N 1 – Race Studio 2 Software Cd (8)
N 1 – Bracket kit (9) including:
      n°1 – bracket for MXL
      n°2 – spacing collars for Suzuki GSX-R
      n°4 – M4 *6 Philip recess screws
      n°2 – washers for M5 screws
      n°2 – Philip recess cup head M5*20 screws
      n°1 – black EPDM washer

Kit MXL Pro05 (Suzuki GSX-R1000 only):

N.1 – MXL Pro05 (1)
N 1 – Suzuki K7 interface wiring for MXL Pro05 (2)
N 1 – Infrared transmitter (3)
N 1 – Infrared receiver (4)
N 1 – Transmitter power cable (5)
N 1 – MXL USB cable(6)
N 1 – TPS cable (throttle position sensor) (10)
N 1 – Leaflet (7)
N.1 – Race Studio 2 Software Cd (8)
N 1 – Bracket kit (9) including:
      n°1 – bracket for MXL
      n°2 – spacing collars for Suzuki GSX-R
      n°4 – M4 *6 Philip recess screws
      n°2 – washers for M5 screws
      n°2 – Philip recess cup head M5*20 screws
      n°1 – black EPDM washer
      n°1 – black EPDM washer

Universal kit (for customers that already have an MXL Strada, Pista, Pro05):

N 1 – Universal interface wiring for Suzuki GSX-R K7-K8 (2)
N 1 – Bracket kit (9) including:
      n°1 – bracket for MXL
      n°2 – spacing collars for Suzuki GSX-R
      n°4 – M4 *6 Philip recess screws
      n°2 – washers for M5 screws
      n°2 – Philip recess cup head M5*20 screws
      n°1 – black EPDM washer

MXL Strada optional:

N – 1 Infrared transmitter (3)
N – 1 infrared receiver (4)
N – 1 transmitter power cable (5)
N – 1 TPS cable (throttle position sensor) (10)

Note: before installing the kit it is suggested to check that it contains all specified items.

1.1 – Part Numbers (see Appendix A)

KIT Plug&Play MXL Strada for Suzuki GSX-R600 K7-K8: code **X16MXLSGS0567** (CAN connection and analog channels; technical drawing nr. 04.554.55 – f1/f2).

KIT Plug&Play MXL Strada for Suzuki GSX-R750 K7-K8: code **X16MXLSGS0567** (CAN connection and analog channels; technical drawing nr. 04.554.55 – f1/f2).

KIT Plug&Play MXL Strada for Suzuki GSX-R1000 K7-K8: code **X16MXLSGS7810** (CAN connection and analog channels; technical drawing nr. 04.554.55 – f1/f2).

Universal kit for MXL Strada Suzuki GSX-R600 K7-K8 (wiring + bracket) codes: **V02554550K5+DNKTSTMXLK5** (to make an MXL Strada become a Plug&Play application for Suzuki GSX-R600 K7-K8 ; technical drawing nr. 04.554.55 – f1/f2).

Universal kit for MXL Strada Suzuki GSX-R750 K7-K8 (wiring + bracket) codes: **V02554550K5+DNKTSTMXLK5** (to make an MXL Strada become a Plug&Play application for Suzuki GSX-R750 K7-K8 ; technical drawing nr. 04.554.55 – f1/f2).

Universal kit for MXL Strada Suzuki GSX-R1000 K7-K8 (wiring + bracket) codes: **V02554550K7+DNKTSTMXLK7** (to make an MXL Strada become a Plug&Play application for Suzuki GSX-R1000 K7-K8 ; technical drawing nr. 04.554.55 – f1/f2).

Plug&Play kit MXL Pista for Suzuki GSX-R600 K7-K8 code: **X16MXLCGS0567** (CAN connection and analog channels; technical drawing nr. 04.554.54 – f1/f2).

Plug&Play kit MXL Pista for Suzuki GSX-R750 K7-K8 code: **X16MXLCGS0567** (CAN connection and analog channels; technical drawing nr. 04.554.54 – f1/f2).

Plug&Play kit MXL Pista for Suzuki GSX-R1000 K7-K8 code: **X16MXLCGS7810** (CAN connection and analog channels; technical drawing nr. 04.554.54 – f1/f2).

Universal kit for MXL Pista Suzuki GSX-R600 K7-K8 (wiring + bracket) codes: **V02554550K5+DNKTSTMXLK5** (to make an MXL Strada become a Plug&Play application for Suzuki GSX-R600 K7-K8 ; technical drawing nr. 04.554.54 – f1/f2).

Universal kit for MXL Pista Suzuki GSX-R750 K7-K8 (wiring + bracket) codes: **V02554550K5+DNKTSTMXLK5** (to make an MXL Strada become a Plug&Play application for Suzuki GSX-R750 K7-K8 ; technical drawing nr. 04.554.54 – f1/f2).

Universal kit MXL Pista for Suzuki GSX-R1000 K7-K8 (wiring + bracket) **codes: V02554540K7+DNKTSTMXLK7** (to make an MXL Pista become a Plug&Play application for Suzuki GSX-R1000 K7-K8 ; technical drawing nr. 04.554.54– f1/f2).

Plug&Play kit for MXL Pro05 Suzuki GSX-R1000 K7-K8 code: **X16MXLPGS7810** (CAN connection and analog channels; technical drawing nr. 04.554.68 – f1/f2/f3).

Universal kit for MXL Pro05 Suzuki GSX-R1000 K7-K8 (wiring + bracket) codes: **V02554680K7+DNKTSTMXLK7** (to make an MXL Pro05 become a Plug&Play application for Suzuki GSX-R1000 K7-K8 ; technical drawing nr.04.554.68 – f1/f2/f3).

Optional to kit MXL Strada Suzuki GSX-R1000 K7-K8

Infrared receiver code: **X41RX12090**
Infrared transmitter: **X02TXKMA01**
Transmitter power cable code: **V02POWTXO**
TPS cable (throttle position sensor) code: **V02550690**

2 – Plug&Play kit installation

Plug&Play kits for Suzuki GSX-R K7-K8 has been expressly designed and developed to be really easy to install.

WARNING: this kit has been expressly tested to guarantee total compatibility with a bike identical to the stock one sold by the manufacturer.

Using the anchor plugs mounted on the logger back it is possible to replace the original dashboard in an easy and quick way without cutting, bending or drilling anything: each item is "Plug&Play".

The logger is to be connected to the High Beam chassis using the bracket included in the kit. The bracket is in black anodized aluminium, light weight and mechanically resistant.

GENERAL NOTES – Read these notes before installing the system.

- Do not cut any cable: the wiring included in the kit is Plug&Play.

- Pay attention not to damage the stock connectors while plugging/unplugging them. In the following pages it's described how to correctly manage them.

- Do not install the system when the engine is hot. Stock connectors are quite near to it: there is burning risk.

- The space under the fuel tank is quite small: pay attention when demounting/re-mounting it.

- Pay attention not to loose screw and washers.

- Pay attention not to damage the fairings when installing/uninstalling them.

2.1 – Removing mirrors, front and lateral fairings.

To disconnect the stock dashboard and install **MXL** on **Suzuki GSX-R K7-K8** it is necessary to remove:

- front screen
- lateral mirrors
- lateral fairings
- fuel tank

Note: please refer to the bike user manual for further information.

2.2 – Remove the stock dash, disconnect the stock connectors

The second installation step is removing the stock dash and disconnect the stock connectors.

The stock dash is fixed to the bike in three points.

In **Figure 1** the back fixing points of the stock dashboard are red circled
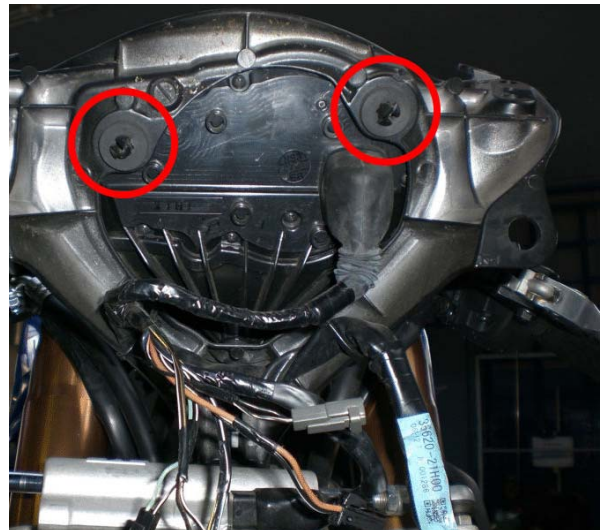
Figure 1: fixing point of the stock dash.

The stock dash is frontally fixed through the bolt red circled in **Figure 2**. Remove it.

Figure 2: front fixing bolt of the stock dash.

Disconnect the 16 pins AMP connector from the stock dash as shown in **Figure 3**. Remove the plastic cover, pull down the tongue (highlighted by an arrow) and unplug the connector from the dash.

Figure 3: stock dash connector.

It is now possible to remove the stock dash.
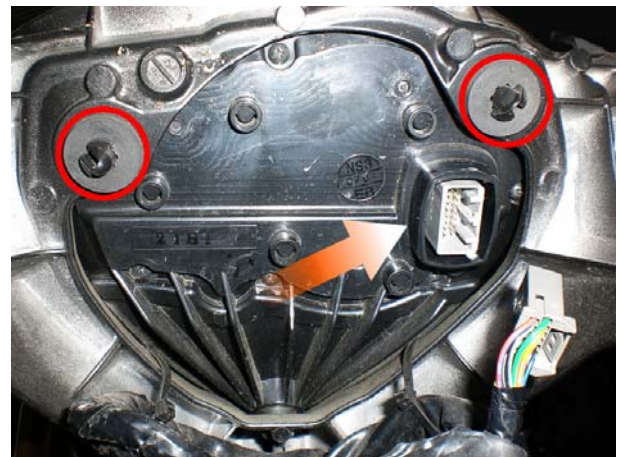
Figure 4: the stock dash connector has been unplugged.

The bike is ready for the installation.

Figure 5: Stock dash removal is over.

2.3 – Assembling the kit

The third installation step is assembling the kit:

Insert the two spacing collars of the kit in the back rubber fixing points as highlighted by the arrow in **Figure 6**.

Figure 6: Spacing collar.

Figure 7 shows the correct assembly of bracket and washers on **MXL** anti-vibration mountings (rear view).

Figure 7: MXL and bracket – rear view.

Use the screws included in the kit to fix the spacing collars previously inserted in the anti-vibration mountings to **MXL** bracket.

Figure 8: rear screws are fixed.

Use the proper screw (included in the kit) to fix **MXL** bracket to the front chassis, paying attention to insert the rubber between them.

Figure 8: fixing the front screw.

2.4 – Wiring connection

The fourth installation step is connecting the wiring included in the kit.

Insert the 12 and 16 pins female connectors of **MXL** wiring in the logger back ones until a click is heard (**Figure 10**).

Figure 10 : MXL wiring connection.

Connect 16 pins black connector (previously unplugged from the stock dash) to the male connector placed in the black aluminium box until hearing a click (**Figure 11**).
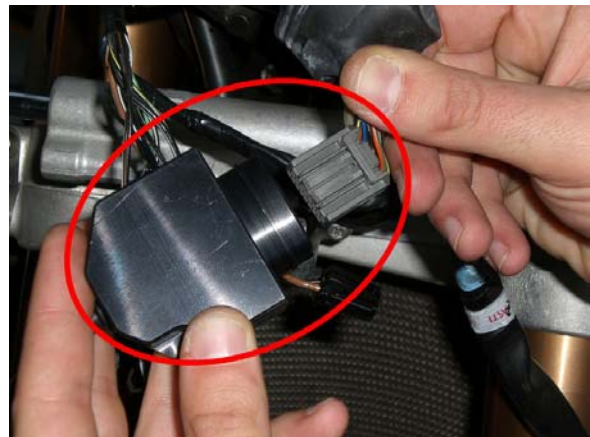

Figure 11: Connection between MXL wiring and the bike one.

When the 16 pins connector has been unplugged, use the rubber cover of the stock dash to make the connection water resistant.
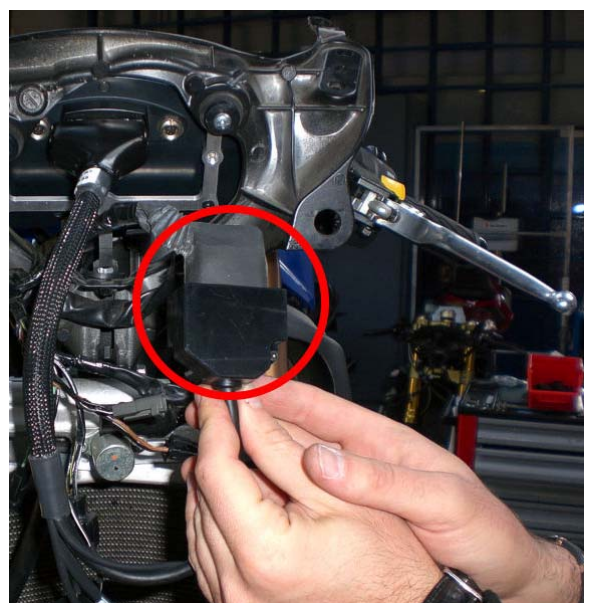
Figure 12 :installing the rubber cover to make the connection water resistant.

MXL is now connected.

Before remounting the lateral fairings, the front one, the mirrors, the bike seat and the fuel tank, switch the bike on to check the system integrity and its correct working.

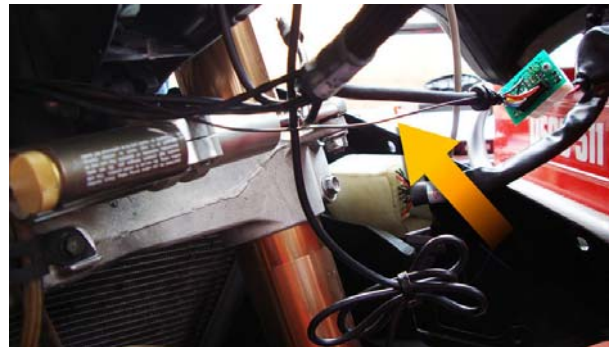It is moreover suggested to wrap **MXL** wiring to the stock one.

Figure 13: the connection is over.

2.5 – Installing the wiring

The kit wiring has an external black ground cable - labelled GND – that needs to be connected to the battery negative pole as shown in the following images:

The ground cable is highlighted by an arrow in **Figure 14**.

Figure 14: black ground cable.

Let the wiring run along the bike chassis, as indicated in **Figure 15**, until the bike battery.

Figure 15: ground cable runs along the bike chassis.

Figure 16: connection of ground cable to the battery negative pole.

Once reached the battery, connect the cable to the negative pole (**Figure 16**).

Figure 17: external ground cable is correctly connected.

Figure 17 shows the external ground cable correctly connected to the negative pole of the bike battery.

2.6 – Installing TPS sensor (included in MXL Pista and MXL Pro05 kits)

Warning: before installing the cable it is necessary to dismount the fuel tank.
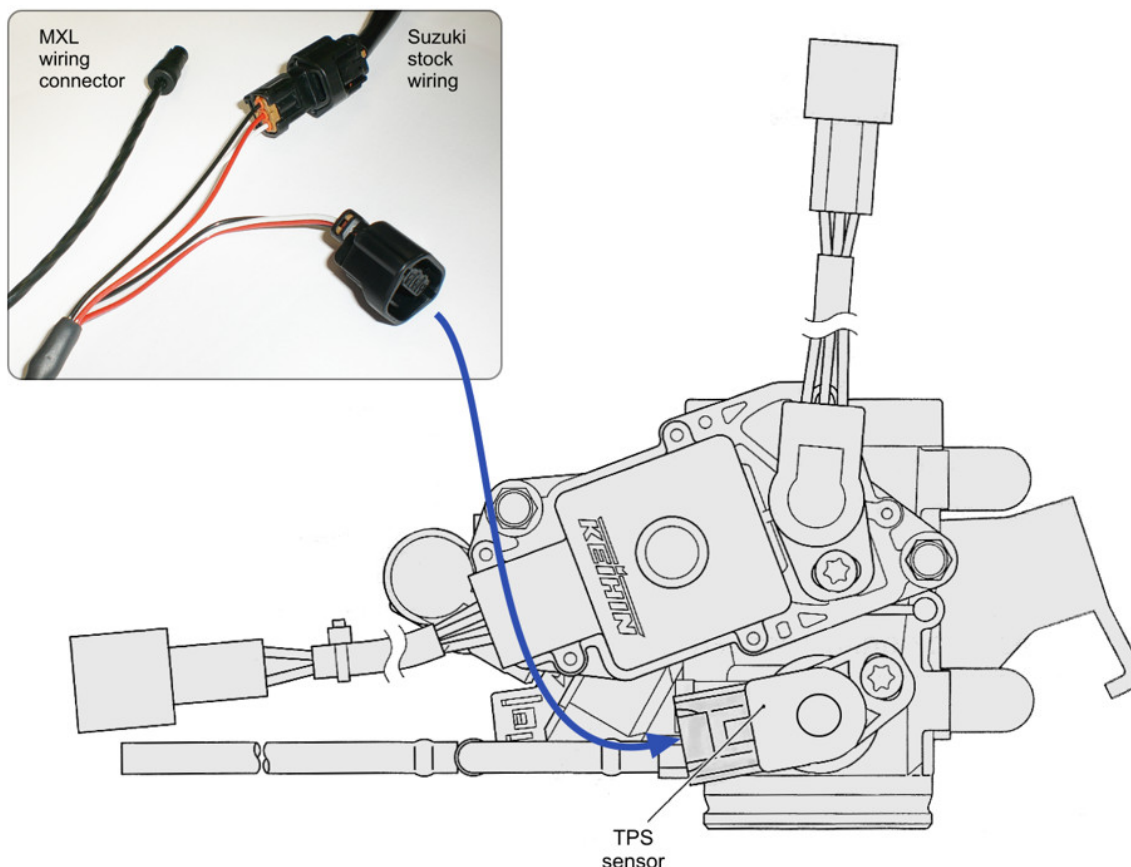
Unplug Suzuki stock wiring from TPS sensor and connect it to the male connector of **MXL** wiring for TPS sensor (as shown in the box of the image above).

Connect the female connector of **MXL** TPS wiring to the TPS sensor as shown by the blue arrow.

Connect 4 pins plastic Binder connector to one of the free channels depending on **MXL** version (see channels chapter).

For further information concerning the configuration of the channel TPS sensor is installed on, refer to "Configuring TPS sensor" chapter in the following pages.

3 – MXL inputs connection

Thanks to interface wirings of Plug&Play kits for Suzuki GSX-R K7-K8 data acquisition is really easy and quick. The images below show all the connections that allow data visualisation on **MXL**.

3.1 – MXL Strada - Pista

1 – LAP connector
Lap connector (left) is to sample lap time;

2 – Expansion Modules, GPS, LAMBDA (CAN) connector.
Expansion modules connector (right) allows to connect all expansions that communicate using the CAN bus (GPS, Lambda probe).

3 – 12 pins AMP female connector (contact insertion view) AIM wiring included in the kit.

4 – 16 pins AMP female connector (contact insertion view) AIM wiring included in the kit.

Note: the two AMP connectors (12 and 16 pins) allow the communication between the logger and GSX-R K7-K8 ECU.

3.2 – MXL Pro05 (compatible with Suzuki GSX–R1000 only)

The wiring is made up of two connectors (logger connection side):
1 – **37 pins** male Deutsch connector
2 – **22 pins** male Deutsch connector

On the bike side wiring terminations are three:
N° 13 – 4 pins Binder 719 female connectors allow the transmission to the logger of analog data and speed as well as data download (through USB)
N°1 – 5 pins Binder 712 female connector allows the transmission of data coming from the ECU.
N°1 – Hirose Connector: allows the transmission, through ASG07 interface, of data concerning oil pressure, fuel level, 1 speed, RPM value.

Note: for further information refer to "Appendix A – Technical drawings".

4 – Suzuki GSX-R600/750/1000 K7-K8 firmware

MXL Strada/Pista for **Suzuki GSX-R600/750/1000 K7-K8** is equipped with a special Firmware version, that supplies a second virtual dashboard.

Note: **MXL** firmware version should be from **14.86.33** onward.

On the road the display is set on "street mode" and shows the following parameters:
- RPM graph bar with configurable scaling: **black**.
- RPM digital value / battery voltage / total and partial odometer date and time: **fuchsia** (use VIEW/ QUIT button to switch between the options).
- Speed: **red**.
- Engaged gear: **green**.
- Analog inputs always shown depending on MXL version: **blue**.
- Until 4 fields shown on demand and selected from the pop up menu of **Race Studio 2** System Configuration window: light blue.

Use ">>" button to change the visualisation.

Figure 18: Display on street mode.

On track, passing by a switched on transmitter, the display switches automatically on "track mode" and shows lap time in spite of odometer (**Figure 19**).

Figure 19: display on track mode.

Display mode (street/track) set via software is stored by the logger. Default setting is "show odometer". Setting "show lap time" this display mode is restored at each switch on.
Note: for further information concerning display management and configuration refer to **MXL** and/or **Race Studio Configuration** user manuals.

5 – Configuration

Once installed, **MXL** is ready to be used thanks to its default configuration. In case a custom configuration is needed, follow these instructions.

- Run **Race Studio 2** software (from version **2.30.05 onward**).
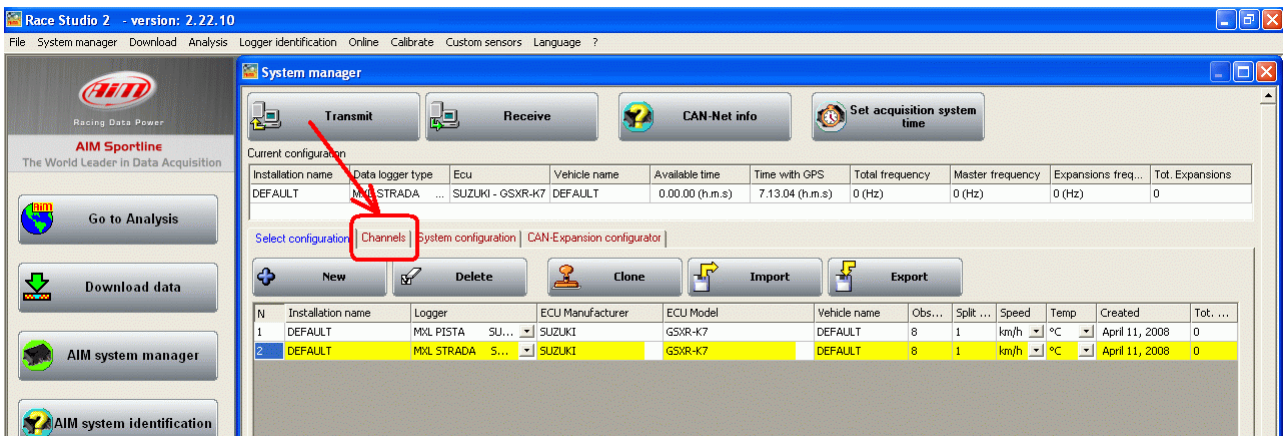- Press "AIM system manager" button on the left vertical keyboard and then **MXL** button.

- Press "New" button and the window here below appears:
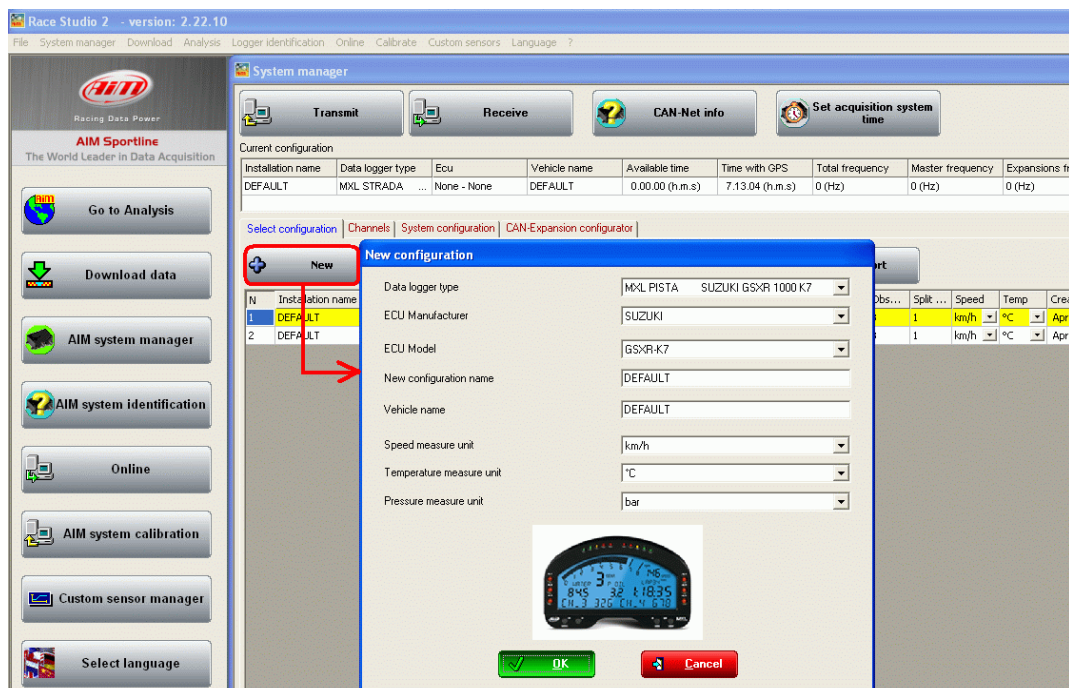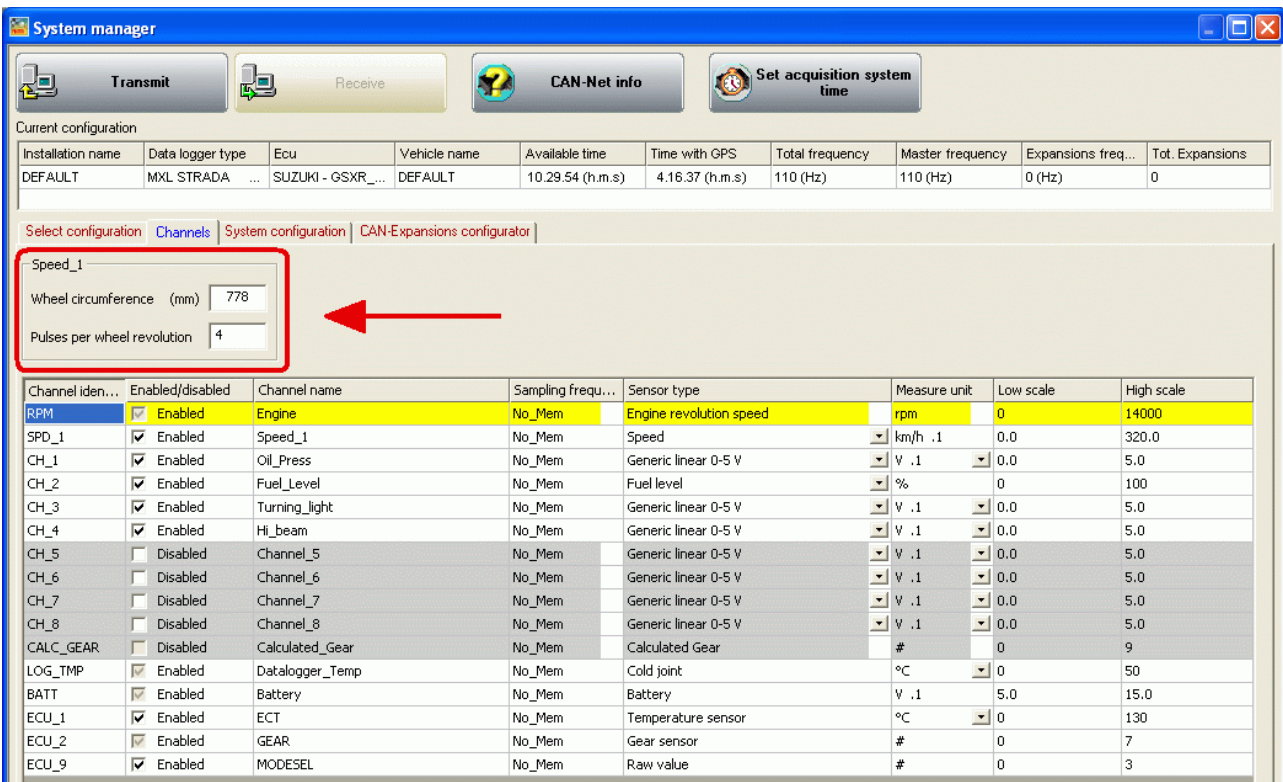
Fill in the window below:

- **Data logger type:** select **MXL Strada/Pista/Pro05** Suzuki GSX-R600/750/1000 K7-K8 according to your model.

- **New configuration name**: fill in a configuration name

- **Vehicle name**: fill in a vehicle name

- Select the desired **unit of measure** for speed, temperatures and pressures

- Click on OK button to create the configuration

- Select **Channel** layer to configure the channels sampled by **MXL**.

In case of an **MXL Strada** configuration this window appears:

In case of an **MXL Pista** configuration this window appears:

In case of an **MXL Pro05** configuration this window appears:

These windows show the channels sampled by the logger and speed panels – 1 for **MXL Strada/MXL Pista** and 4 for **MXL Pro05** - labelled "Speed" and highlighted in the figures above.

Note: all additional channels are disabled by default; to configure them refer to **Race Studio Configuration** user manual.

Speed panel: Suzuki GSX-R K7-K8 speed sensor is installed on the shaft that connects the gearbox to the pinion. The number of magnets installed on this shaft is 4.
Wheel circumference is an "equivalent circumference" computed using this formula:

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

Np= pinion teeth number
Nc=crown teeth number

Using default values of pinion and crown teeth number for a Suzuki GSX–R750 the equivalent circumference is 747 (29.4 inches). In case pinion and/or crown are changed and the new one has a different teeth number the circumference has to be recomputed. For further information on this subject refer to **"Equivalent circumference compute"** chapter.

It is now necessary to configure the display. Select System Configuration layer:

This window appears. Set values depends on the bike displacement and year of production.
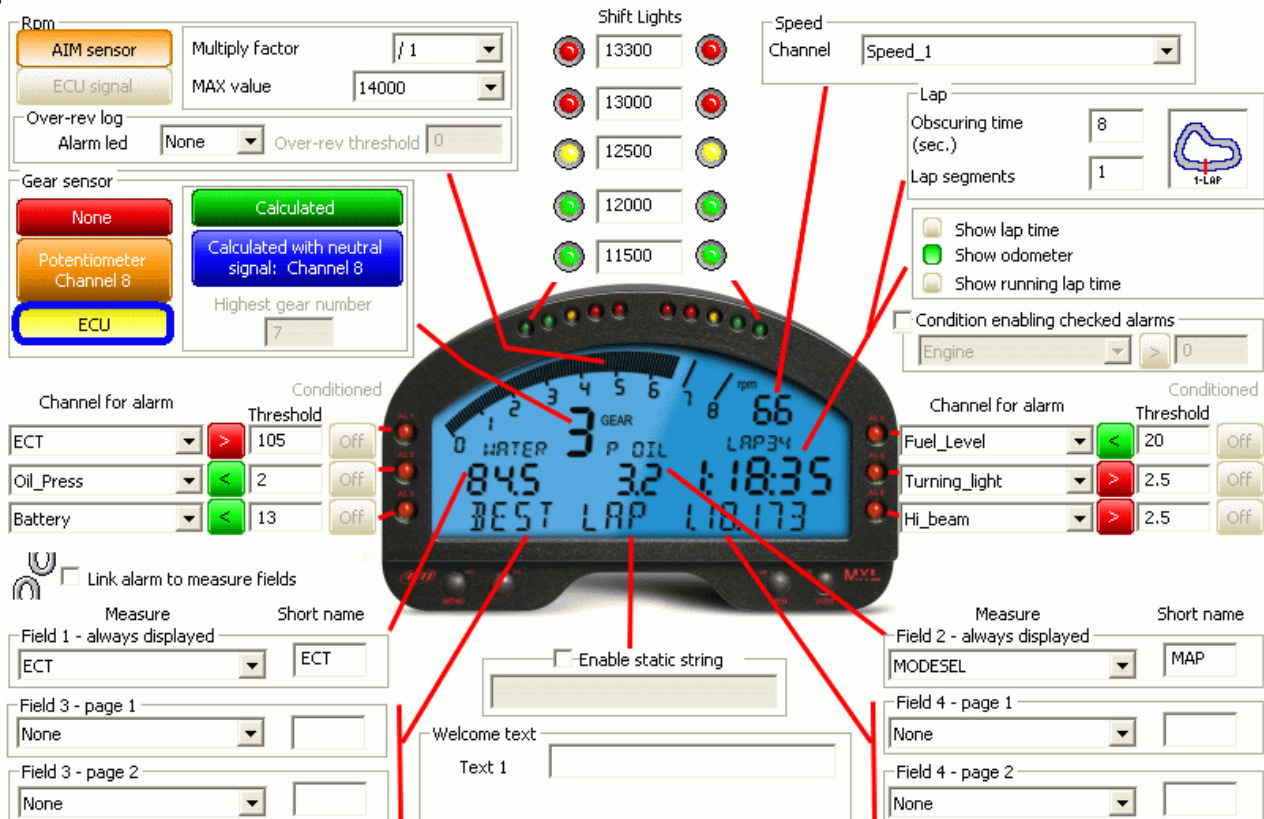
Some fields are already set.

RPM: high scale is set between 14.000 and 16.000 RPM.

Gear sensor: ECU.

Lap: obscuring time: 8 seconds; **lap segments**: 1 (no splits).

Shift lights: Shift Lights setting depends on the bike displacement and year of production. They have been computed using the stock engine limiter threshold value. In case the engine limiter has an higher value shift lights values needs to be recomputed so that the last red led switches on just before limiter intervention.

Default visualization for all **MXL** versions (over RPM and speed) shows some channels and activates some alarms:

- **ECT**: water temperature: channel shown with alarm led; default threshold value: ">" (higher than) 105°C. The alarm led switches on when water temperature is higher than 105°C.

- **MODESEL**: selected ECU mapping: field shown.

- **ODOMETER**: run kilometres: channel shown. On the track (with infrared transmitter and receiver), when the logger detects a lap signal it switches automatically on "Show lap time" mode. Switching off/on **MXL** it shows again odometer.

- **OIL PRESSURE**: channel not shown, alarm led activated with default threshold value: "<" (lower than) 2 Bar. The alarm led switches on when oil pressure is lower than 2 Bar.

- **BATTERY**: channel not shown, alarm activated with default threshold value: "<" 13 volts for **MXL Strada/MXL Pista** and "<" 13,3 Volt for **MXL Pro05**. This means that the alarm led switches on when the battery voltage is lower than 13 volts for **MXL Strada/MXL Pista** and 13.3 Volts for **MXL Pro05**. This channel can be shown in spite of odometer pressing "quit/VIEW" button.

- **FUEL LEVEL**: channel not shown, alarm led activated with default threshold value: "<" (lower than) 20. It is a percentage value. The alarm switches on when left fuel in the fuel tank is less than 20% of the tank capacity (which corresponds to around 4,5 litres of fuel).

Warning: default visualisation reported above includes only channels and/or alarms commons to all MXL versions. This means that some versions can have additional alarm led activated (like high beam or turning lights for instance).

Note: to modify and customize visualized channels and the related alarms as well as to condition these last ones, refer to **Race Studio Configuration** user manual.

This way the configuration is ready and can be transmitted to **MXL**: press "Transmit" button on the software top keyboard.

6 – Equivalent circumference compute

To compute the equivalent circumference to insert in the proper box of **Race Studio 2** "Channels" layer it is possible to use "BIKE.exe" software, included in the "Utilities" folder of **Race Studio 2** CD. Browse the CD.

Double click on "**Bike.exe**" icon and the window on the right appears.

Fill in "Drive gear teeth number".

Fill in "Driven gear teeth number".

Select the circumference unit of measure.

Fill in wheel circumference value.

Press "compute" button.
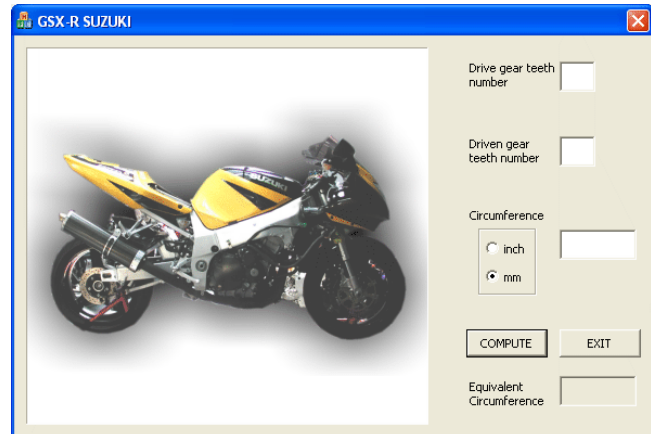
The software computes the equivalent circumference and the value appears in the proper case (red circled).
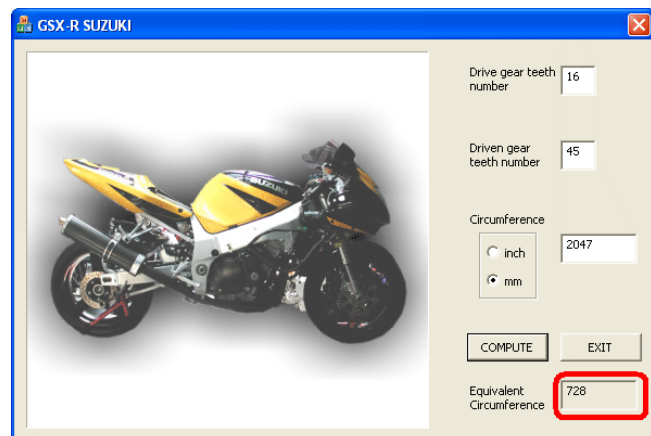
Insert this value in the proper cell of **Race Studio 2** "Channels" layer.
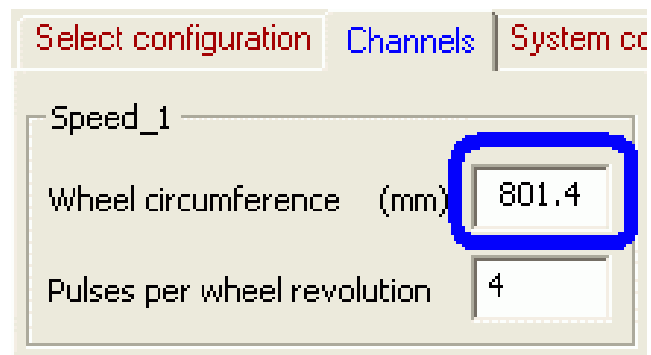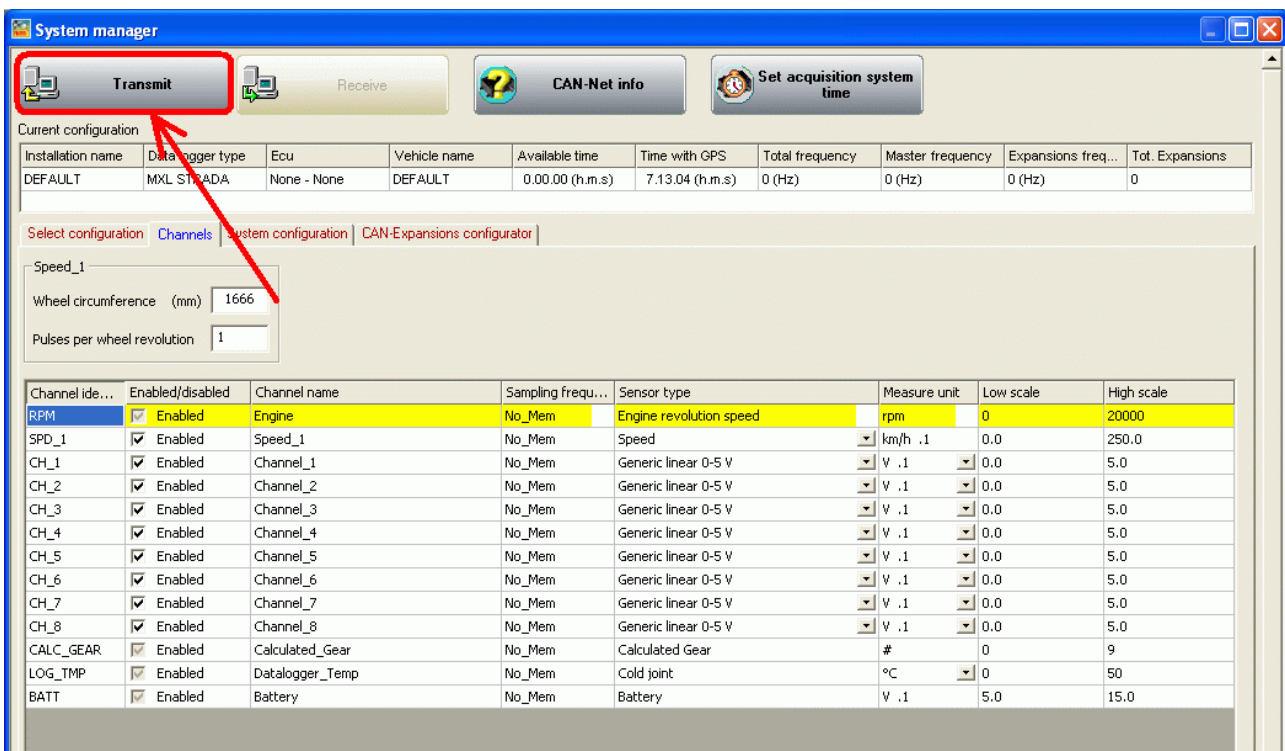
7 – Configuring TPS sensor

When the sensor has been installed on the bike (refer to chapter "Installing TPS sensor" for further information) it needs to be calibrated to sample correct data.

This procedure can be performed only through a PC with Microsoft Windows XP or Microsoft Windows Vista 32 bit and **Race Studio 2** software (release **2.30.05 or later**), included in the kit.

The logger has to be connected to the PC using the proper USB cable (included in the kit).

When **MXL** is connected to the PC and switched on, run **Race Studio 2** and select the configuration where to set the sensor on. To set the sensor on a channel:

- activate channel layer;
- select the channel TPS sensor has been physically installed on;
- enable it clicking on the related cell of "Enabled/Disabled" column;
- set - if desired - a channel name;
- select "Zero based potentiometer" in the drop down menu of "Sensor Type" column;
- set the appropriate unit of measure;
- set a high scale value (recommended 110%)
- click on "Transmit" button to transmit the configuration to the logger.

Click on "AIM system calibration" button on the left vertical keyboard or on the menu bar (red circled in the image below).
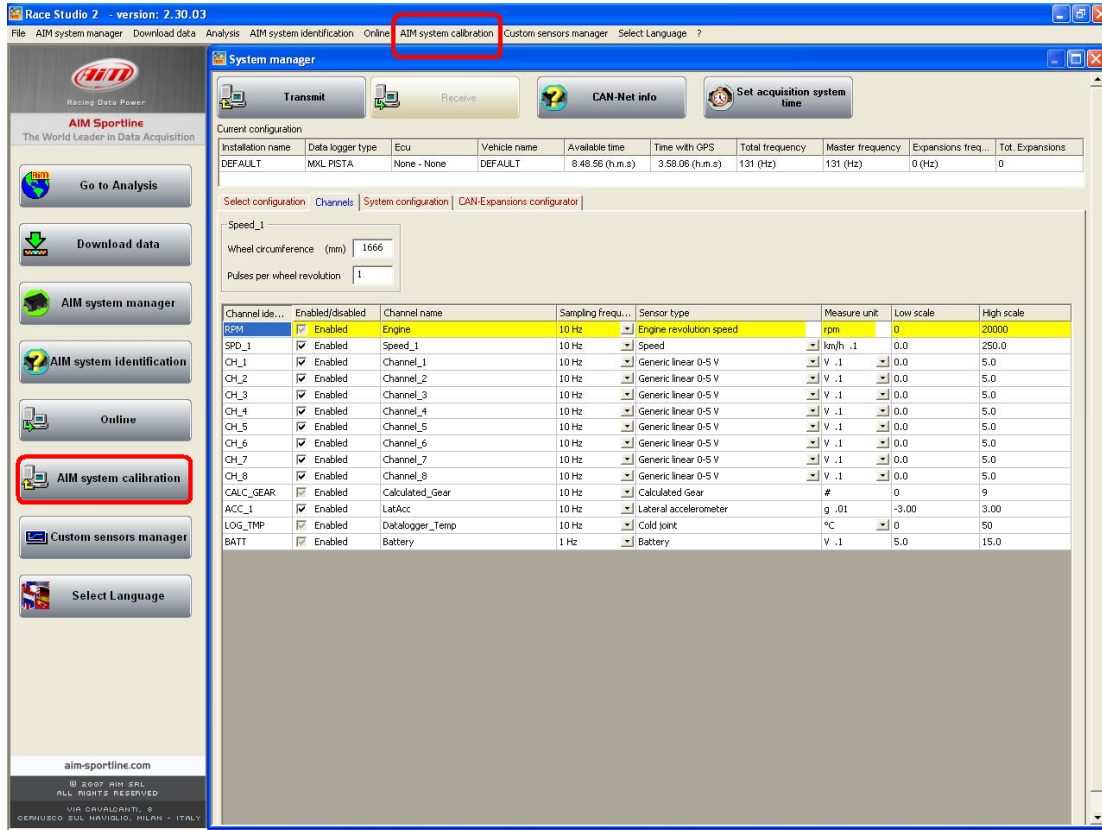
This window appears: click on "Calibrate" button.

This window appears:

Follow the instructions that appear on the PC monitor.

- With the gas completely open press "Get raw data" button corresponding to "high position".

- With the gas in its zero position press "Get raw data" corresponding to "zero position".

- Match sampled reference measure values with custom values to be inserted in "Measure" case; for example match 100 value to the raw value sampled with the gas completely open and match 0 value to the raw value sampled with the gas closed.

- Press "OK".

- The system comes back to the previous window and shows sensor status on calibrate in red and "Transmit calibration" button enabled.

- Press it to transmit the calibration to the logger.

8 – Channels

Channels set in **MXL** for Suzuki GSX-R K7-K8 configurations are as follows:

MXL Strada Suzuki GSX–R600 – 2008

Channel Identifier	Channel Name	Function
RPM	Engine	RPM value
SPD_1	Speed_1	Speed value
Ch_1	Oil_Press	Oil pressure
Ch_2	Fuel_level	Fuel level
Ch_3	Turning _light	Turning lights ON/OFF
Ch_4	Hi_beam	High Beam ON/OFF
Ch_5	Channel_5	Free channel
Ch_6	Channel_6	Free channel
Ch_7	Channel_7	Free channel (12V)
Ch_8	Channel_8	Free channel (12V)
LOG_TMP	Datalogger_Temp	Logger internal temperature
BATT	Battery	Battery voltage
ECU_1	ECT	Temperature sensor
ECU_2	Gear	Gear sensor
ECU_9	Modesel	Raw value

MXL Strada Suzuki GSX–R750 – 2008

Channel Identifier	Channel Name	Function
RPM	Engine	RPM value
SPD_1	Speed_1	Speed value
Ch_1	Oil_Press	Oil pressure
Ch_2	Fuel_level	Fuel level
Ch_3	Turning _light	Turning lights ON/OFF
Ch_4	Hi_beam	High Beam ON/OFF
Ch_5	Channel_5	Free channel
Ch_6	Channel_6	Free channel
Ch_7	Channel_7	Free channel (12V)
Ch_8	Channel_8	Free channel (12V)
LOG_TMP	Datalogger _Temp	Logger internal temperature
BATT	Battery	Battery voltage
ECU_1	ECT	Temperature sensor
ECU_2	Gear	Gear sensor
ECU_9	Modesel	Raw value

MXL Strada Suzuki GSX–R1000 – 2007/2008

Channel Identifier	Channel Name	Function
RPM	Engine	RPM value
SPD_1	Speed_1	Speed value
Ch_1	Oil_Press	Oil pressure
Ch_2	Fuel_level	Fuel level
Ch_3	Turning_light	Turning lights ON/OFF
Ch_4	Hi_beam	High Beam ON/OFF
Ch_5	Channel_5	Free channel
Ch_6	Channel_6	Free channel
Ch_7	Channel_7	Free channel (12V)
Ch_8	Channel_8	Free channel (12V)
LOG_TMP	Datalogger _Temp	Logger internal temperature
BATT	Battery	Battery voltage
ECU_1	ECT	Temperature sensor
ECU_2	Gear	Gear sensor
ECU_9	Modesel	Raw value

MXL Pista Suzuki GSX-R600 – 2008

Channel Identifier	Channel Name	Function
RPM	Engine	RPM value
SPD_1	Speed_1	Speed value
Ch_1	Oil_Press	Oil pressure
Ch_2	Fuel_level	Fuel level
Ch_3	Channel_3	Free channel
Ch_4	Channel_4	Free channel
Ch_5	Channel_5	Free channel
Ch_6	Channel_6	Free channel
Ch_7	Channel_7	Free channel
Ch_8	Channel_8	Free channel
ACC_1	LatAcc	Lateral Accelerometer
LOG_TMP	Datalogger _Temp	Logger internal temperature
BATT	Battery	Battery voltage
ECU_1	ECT	Temperature sensor
ECU_2	Gear	Gear sensor
ECU_9	Modesel	Raw value

MXL Pista Suzuki GSX-R750 – 2008

Channel Identifier	Channel Name	Function
RPM	Engine	RPM value
SPD_1	Speed_1	Speed value
Ch_1	Oil_Press	Oil pressure
Ch_2	Fuel_level	Fuel level
Ch_3	Channel_3	Free channel
Ch_4	Channel_4	Free channel
Ch_5	Channel_5	Free channel
Ch_6	Channel_6	Free channel
Ch_7	Channel_7	Free channel
Ch_8	Channel_8	Free channel
ACC_1	LatAcc	Lateral Accelerometer
LOG_TMP	Datalogger _Temp	Cold joint
BATT	Battery	Battery voltage
ECU_1	ECT	Temperature sensor
ECU_2	Gear	Gear sensor
ECU_9	Modesel	Raw value

MXL Pista Suzuki GSX-R1000 – 2007/2008

Channel Identifier	Channel Name	Function
RPM	Engine	RPM value
SPD_1	Speed_1	Speed value
Ch_1	Oil_Press	Oil pressure
Ch_2	Fuel_level	Fuel level
Ch_3	Channel_3	Free channel
Ch_4	Channel_4	Free channel
Ch_5	Channel_5	Free channel
Ch_6	Channel_6	Free channel
Ch_7	Channel_7	Free channel
Ch_8	Channel_8	Free channel
ACC_1	LatAcc	Lateral Accelerometer
LOG_TMP	Datalogger_Temp	Logger internal temperature
BATT	Battery	Battery voltage
ECU_1	ECT	Temperature sensor
ECU_2	Gear	Gear sensor
ECU_9	Modesel	Raw value

MXL Pro05 GSX–R1000 2007/2008

Channel Identifier	Channel Name	Function
RPM	Engine	RPM value
SPD_1	Speed_1	Speed value
Ch_1	Oil_Press	Oil pressure
Ch_2	Fuel_level	Fuel level
Ch_3	Channel_3	Free channel
Ch_4	Channel_4	Free channel
Ch_5	Channel_5	Free channel
Ch_6	Channel_6	Free channel
Ch_7	Channel_7	Free channel
Ch_8	Channel_8	Free channel
Ch_9	Channel_9	Free channel
Ch_10	Channel_10	Free channel
Ch_11	Channel_11	Free channel
Ch_12	Channel_12	Free channel
ACC_1	LatAcc	Lateral Accelerometer
LOG_TMP	Datalogger_Temp	Logger internal temperature
BATT	Battery	Battery voltage
ECU_1	ECT	Temperature sensor
ECU_2	Gear	Gear sensor
ECU_9	Modesel	Raw value

There are also other channels that, according to your wiring, can be used to connect additional sensors (like suspension potentiometers, brake pressure sensors, etc…).
For further information concerning additional sensors installation and configuration refer to **MXL** and **Race Studio Configuration** user manual.

9 – Data download and analysis

When a test session is over the data stored in the logger memory can be downloaded and saved in a database.

Note: data download and analysis are only available for **MXL Pista**/**Pro05**. For further information concerning these subjects refer to the proper user manuals.

10 – MXL expansions

The wide range of **AIM** products expressly dedicated to all kinds of need of any biker, makes **MXL** be a modular and expandable system

GPS Module

GPS Module allows the user to sample a lot of important information: brake analysis, information related to the chassis and to the behaviour of the biker in any point of the track.
This makes it possible to show tracks, its speed and evaluate driving errors. Exporting all information in Google Earth® it is possible to overlap the run trajectories through real images.
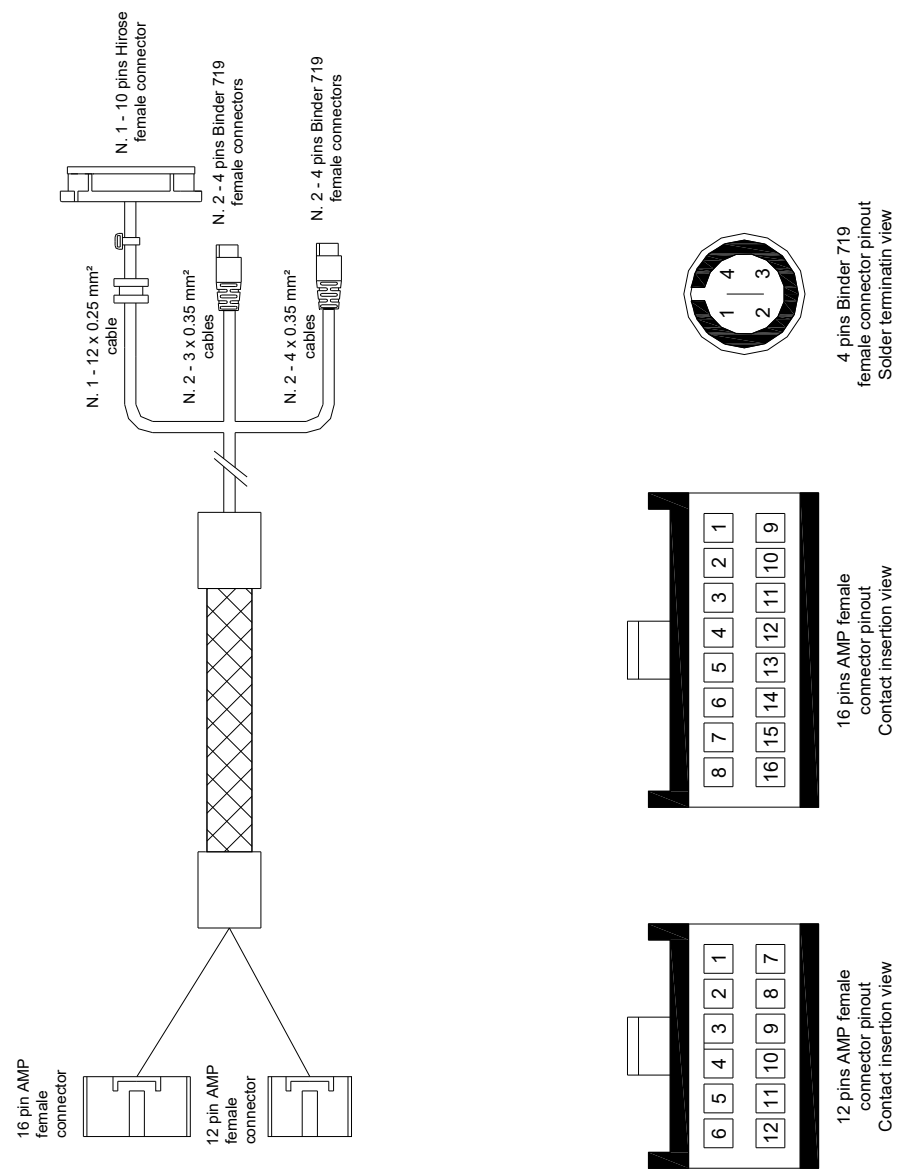
LCU-ONE

LCU – ONE CAN monitors and allows to optimize in an extremely precise way the Stoichiometric (Air/Fuel) ratio. To obtain the maximum engine performance, LCU-ONE CAN use a wide band Bosch LSU 4.9 probe and can detect punctual Lambda value in a range of 0,65 -1,6.

Appendix "A" – Technical drawings

N.rev. / Rev. N.	Descrizione / Description		Data / date	Firma / Sign	Contr. da / Ckd. by

MXL Strada - Plug & Play Suzuki GSXR K5-K7 wiring

N. 1 - 10 pins Hirose female connector

N. 2 - 4 pins Binder 719 female connectors

N. 2 - 4 pins Binder 719 female connectors

N. 1 - 12 x 0.25 mm² cable

N. 2 - 3 x 0.35 mm² cables

N. 2 - 4 x 0.35 mm² cables

16 pin AMP female connector

12 pin AMP female connector

4 pins Binder 719 female connector pinout
Solder terminatin view

16 pins AMP female connector pinout
Contact insertion view

12 pins AMP female connector pinout
Contact insertion view

Rif. / Ref.	Q.tà / Q.ty	Materiale / Material			N. articolo / Item N.	
Progettato da / Designed by DB	Contr. da / Ckd. by	Approvato da / Approved by	Nome file / File name		Data / Date	Scala / Scale

Titolo / Title MXL Strada - Plug & Play Suzuki GSXR K5-K7 wiring

N. disegno / Drawing N.	04.554.55	Rev. / Rev.	Foglio / Sheet 1 di 2

Racing Data Power

N.rev. / Rev. N.	Descrizione / Description	Data / date	Firma / Sign	Contr. da / Ckd. by

Binder 719 female connector table
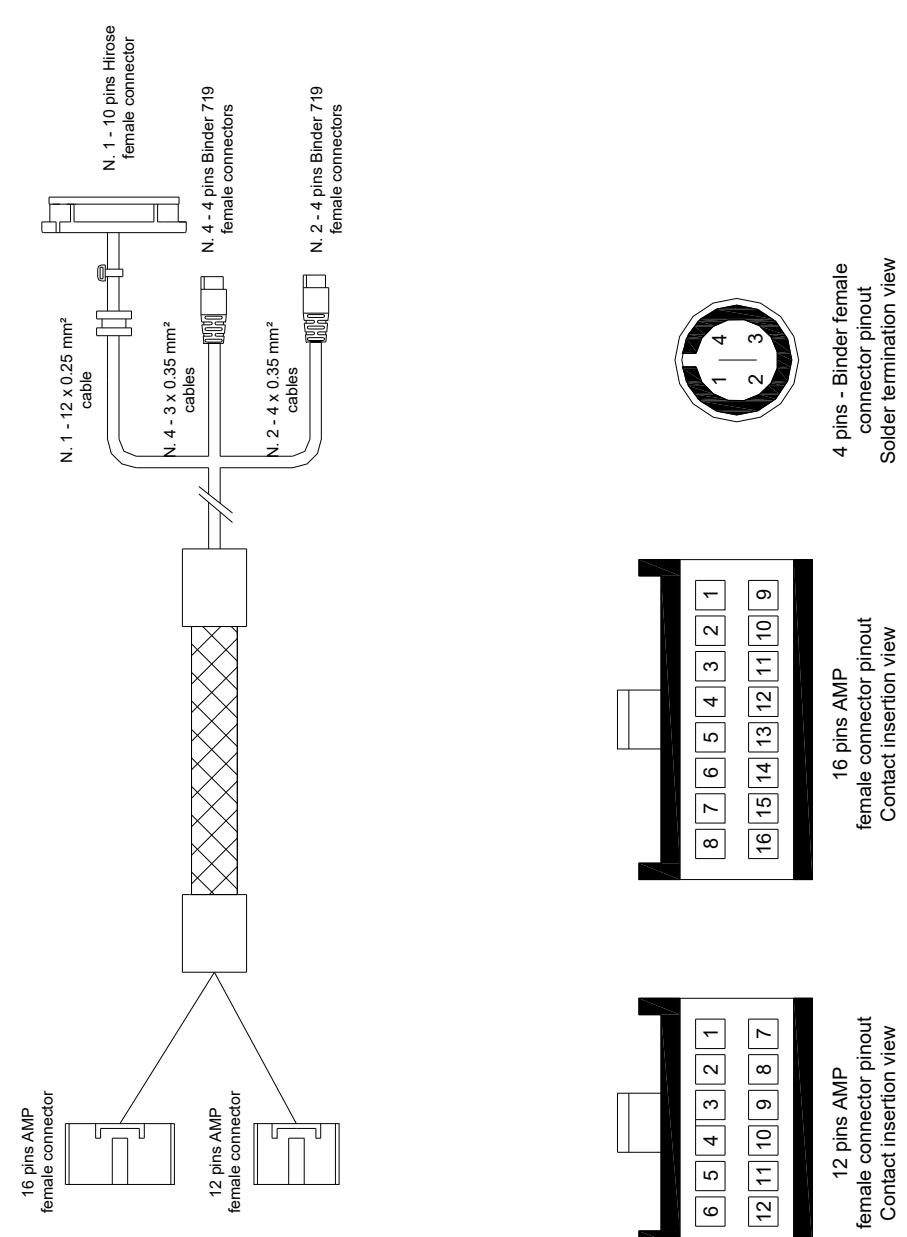
Label	Binder pin	Cable colour	Cable type	AMP 12 pin	AMP 16 pin	Connection	Length
Ch. 5	1 2 3 4	White Black Bleu	3 x 0.35 mm²		16 15 14	Analog Input 5 Analog GND V Reference	300 mm
Ch. 6	1 2 3 4	White Black Bleu	3 x 0.35 mm²		13 11 14	Analog input 6 Analog GND V Reference	340 mm
Ch. 7	1 2 3 4	White Black Red Bleu	4 x 0.35 mm²	9	12 3 6	Analog Input 7 Analog GND +VB V Reference	380 mm
Ch. 8	1 2 3 4	White Black Red Bleu	4 x 0.35 mm²	11	9 7 2	Analog Input 8 Analog GND +VB V Reference	400 mm

10 pins Hirose female connector table

Label	Pin AMP 12 pin	Pin AMP 16 pin	Cable colour	Pin Hirose	Connection	Length
ASG07 o ASG05/A Board	2 12 1 8 4 3	8 5 4 1	Green Red Yellow Brown Black Orange Pink Purple White Bleu	1 2 3 4 5 6 7 8 9 10	Oil P Ch. 1 VB Ext Fuel Ch. 2 Speed GND RPM Turn Ch. 3 High Beam Ch. 4 CAN+ CAN-	440 mm

Rif. / Ref.	Q.tà / Q.ty	Materiale / Material		N. articolo / Item N.	
Progettato da / Designed by DB	Contr. da / Ckd. by	Approvato da / Approved by	Nome file / File name	Data / Date	Scala / Scale

Titolo / Title Cavo MXL Strada Plug & Play Suzuki GSXR K5-K7

N. disegno / Drawing N. 04.554.55 **Rev. / Rev.** **Foglio / Sheet** 2 di 2

N.rev. / Rev. N.	Descrizione / Description		Data / date	Firma / Sign	Contr. da / Ckd. by

MXL Pista - Plug & Play Suzuki GSXR K5-K7 wiring

N. 1 - 10 pins Hirose female connector

N. 4 - 4 pins Binder 719 female connectors

N. 2 - 4 pins Binder 719 female connectors

N. 1 - 12 x 0.25 mm² cable

N. 4 - 3 x 0.35 mm² cables

N. 2 - 4 x 0.35 mm² cables

16 pins AMP female connector

12 pins AMP female connector

4 pins - Binder female connector pinout
Solder termination view

16 pins AMP female connector pinout
Contact insertion view

12 pins AMP female connector pinout
Contact insertion view

Rif. / Ref.	Q.tà / Q.ty	Materiale / Material		N. articolo / Item N.	
Progettato da / Designed by DB	Contr. da / Ckd. by	Approvato da / Approved by	Nome file / File name	Data / Date	Scala / Scale

Titolo / Title MXL Pista - Plug & Play Suzuki GSXR K5-K7 wiring

N. disegno / Drawing N. 04.554.54 Rev. / Rev. Foglio / Sheet **1 di 2**

N.rev. / Rev. N.	Descrizione / Description					Data / date	Firma / Sign	Contr. da / Ckd. by

Binder 719 female connector table

Label	Binder pin	Cable colour	Cable type	AMP 12 pin	AMP 16 pin	Connection	Length
Ch. 3	1 2 3 4	White Black Bleu	3 x 0.35 mm²		4 7 6	Analog Input 3 Analog GND V Reference	300 mm
Ch. 4	1 2 3 4	White Black Bleu	3 x 0.35 mm²		1 3 2	Analog Input 4 Analog GND V Reference	340 mm
Ch. 5	1 2 3 4	White Black Bleu	3 x 0.35 mm²		16 15 14	Analog Input 5 Analog GND V Reference	380 mm
Ch. 6	1 2 3 4	White Black Bleu	3 x 0.35 mm²		13 11 14	Analog Input 6 Analog GND V Reference	420 mm
Ch. 7	1 2 3 4	White Black Red Bleu	4 x 0.35 mm²	9	12 13 6	Analog Input 7 Analog GND +VB V Reference	460 mm
Ch. 8	1 2 3 4	White Black Red Bleu	4 x 0.35 mm²	11	9 7 2	Analog Input 8 Analog GND +VB V Reference	500 mm

Tabella Connettore Hirose 10 pin femmina

Label	AMP 12 pin pin	AMP 16 pin pin	Cable colour	Hirose pin	Connection	Length
ASG 07 o ASG 05/A Board	2 12 1 8 -- -- 4 3	8 5	Green Red Yellow Brown Black Orange -- -- White Bleu	1 2 3 4 5 6 7 8 9 10	Oil P Ch. 1 VB Ext Fuel Ch. 2 Speed GND RPM n.c. n.c. CAN+ CAN-	540 mm

Rif. / Ref.	Q.tà / Q.ty	Materiale / Material			N. articolo / Item N.	
Progettato da / Designed by DB		Contr. da / Ckd. by	Approvato da / Approved by	Nome file / File name	Data / Date	Scala / Scale
			Titolo / Title MXL Pista - Plug & Play Suzuki GSXR K5-K7 wiring			
			N. disegno / Drawing N. 04.554.54		Rev. / Rev.	Foglio / Sheet **2 di 2**

N.rev. / Rev. N.	Descrizione / Description			Data / date	Firma / Sign	Contr. da / Ckd. by

MXL Pro05 - Plug & Play Suzuki GSXR K7 wiring

37 pins Deutsch
connector
external view

22 pins Deutsch
connector
external view

4 pins Binder 719
female connector pinout
solder termination view

5 pins Binder 712
female connector pinout
solder termination view

N. 1 - 4 x 0.35 mm² cable

N. 13 - 4 x 0.35 mm² cables

N. 1 - 12 x 0.25 mm² cable

N. 1 - 10 pins Hirose
female connector

N. 13 - 4 pins Binder 719 female connectors

N. 1 - 5 pins Binder 712
female connector

22 pins Deutsch connector pinout
contact insertion viewi

37 pins Deutsch connector pinout
contact insertion view

Rif. / Ref.	Q.tà / Q.ty	Materiale / Material			N. articolo / Item N.	
Progettato da / Designed by D.B.		Contr. da / Ckd. by	Approvato da / Approved by	Nome file / File name	Data / Date	Scala / Scale

Titolo / Title
MXL Pro05 - Plug & Play GSXR K7 wiring

N. disegno / Drawing N.
04.554.68

Rev. / Rev.

Foglio / Sheet
1 di 3

N.rev. / Rev. N.	Descrizione / Description					Data / date	Firma / Sign	Contr. da / Ckd. by

4 pins Binder 719 connector cables table							
22 pins Deutsch connector pin	37 pins Deutsch connector pin	Cable colour	Binder connector pin	Cable type	Length	Channel	Label
	8 5 6	White Black Red Blu	1 2 3 4	4 x 0.35 mm²	360 mm	Analog Input Ch. 3 GND n.c. V Reference	Ch. 3
	9 4 6	White Black Red Blu	1 2 3 4	4 x 0.35 mm²	360 mm	Analog Input Ch. 4 GND n.c. V Reference	Ch. 4
	32 31 7	White Black Red Blu	1 2 3 4	4 x 0.35 mm²	380 mm	Analog Input Ch. 5 GND n.c. V Reference	Ch. 5
	10 31 7	White Black Red Blu	1 2 3 4	4 x 0.35 mm²	380 mm	Analog Input Ch. 6 GND n.c. V Reference	Ch. 6
	33 35 34	White Black Red Blu	1 2 3 4	4 x 0.35 mm²	400 mm	Analog Input Ch. 7 GND n.c. V Reference	Ch. 7
	26 35 16 34	White Black Red Blu	1 2 3 4	4 x 0.35 mm²	400 mm	Analog Input Ch. 8 GND V Battery. V Reference	Ch. 8
	25 11 17 24	White Black Red Blu	1 2 3 4	4 x 0.35 mm²	420 mm	Analog Input Ch. 9 GND V Battery. V Reference	Ch. 9
	23 11 19 24	White Black Red Blu	1 2 3 4	4 x 0.35 mm²	420 mm	Analog Input Ch. 10 GND V Battery. V Reference	Ch. 10
	19 27 29 22	White Black Red Blu	1 2 3 4	4 x 0.35 mm²	440 mm	Analog Input Ch. 11 GND V Battery. V Reference	Ch. 11
	20 27 21	White Black Red Blu	1 2 3 4	4 x 0.35 mm²	440 mm	Analog Input Ch. 12 GND n.c. V Reference	Ch. 12
	37 28 14 37	White Black Red Blu	1 2 3 4	4 x 0.35 mm²	320 mm	Lap GND V Battery Lap	Lap
	30 28 14	White Black Red Blu	1 2 3 4	4 x 0.35 mm²	320 mm	Speed 2 GND V Battery n.c.	Speed 2
7 8 9		White Black Red Blu	1 2 3 4	4 x 0.35 mm²	1100 mm	USB D+ GND USB D- 	USB

Rif. / Ref.	Q.tà / Q.ty	Materiale / Material		N. articolo / Item N.		
Progettato da / Designed by D.B.	Contr. da / Ckd. by	Approvato da / Approved by	Nome file / File name	Data / Date		Scala / Scale

AiM Racing Data Power

Titolo / Title	MXL Pro05 - Plug & Play GSXR K7 wiring	
N. disegno / Drawing N.	04.554.68	Rev. / Rev.
		Foglio / Sheet **2 di 3**

N.rev. / Rev. N.	Descrizione / Description				Data / date	Firma / Sign	Contr. da / Ckd. by

5 pins Binder 712 connector table

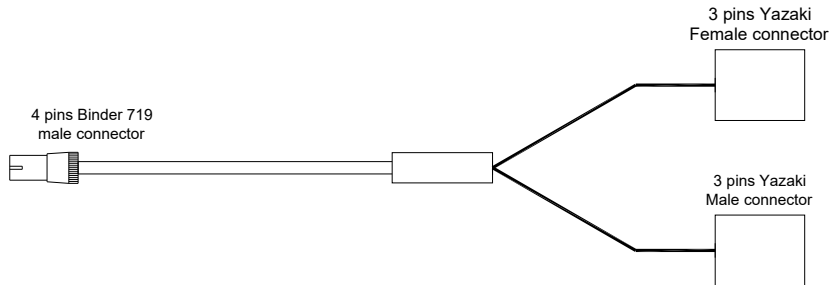| 22 pins Deutsch connector pin	Cable colour	Binder connector pin	Cable type	Length	Channel	Label
3 2 13 4	White Black Red Bleu	1 2 3 4 5	4 x 0.35 mm²	350 mm	CAN 0+ GND V Battery CAN 0- n.c.	Exp.

Tabella cavi terminanti con connettore Hirose

22 pins Deutsch connector pin	37 pins Deutsch connector pin	Cable colour	Hirose connector pin	Cable type	Length	Channel	Label
	2	Green	1			Oil P Ch. 1	
	1	Red	2			V Battery Ext.	
	3	Yellow	3			Fuel Ch. 2	
	36	Brown	4			Speed	
	15	Black	5	10 x 0.25 mm²	540 mm	GND	ASG 07
	12	Orange	6			RPM	Board
	--	--	7			n.c.	
	--	--	8			n.c.	
20		White	9			CAN 1+	
21		Bleu	10			CAN 1-	

Rif. / Ref.	Q.tà / Q.ty	Materiale / Material		N. articolo / Item N.	
Progettato da / Designed by D.B.	Contr. da / Ckd. by	Approvato da / Approved by	Nome file / File name	Data / Date	Scala / Scale

Titolo / Title
MXL Pro05 - GSXR K7 wiring

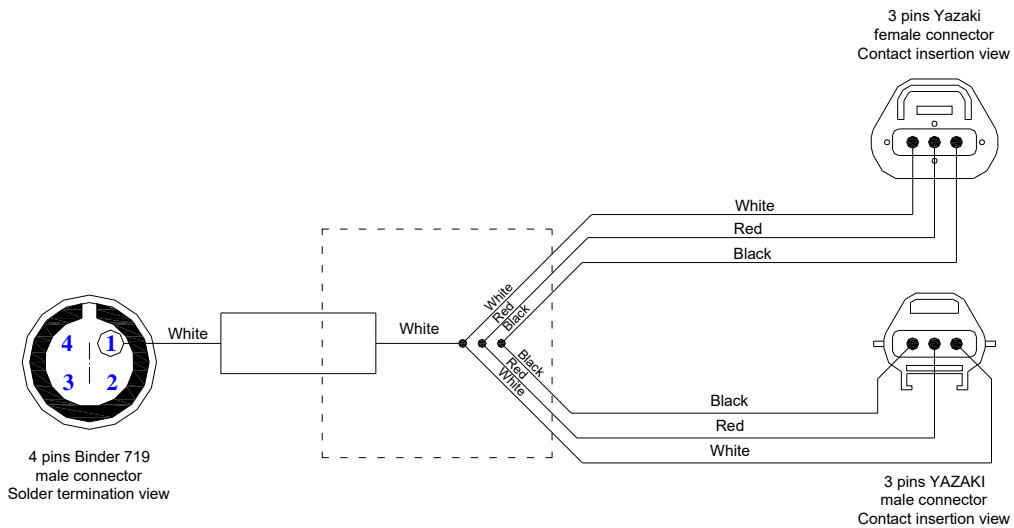| N. disegno / Drawing N. 05.554.68	Rev. / Rev.	Foglio / Sheet **3 di 3**

N.rev	Nota sulla revisione	Data	Firma	Controllo

TPS Cable

3 pins Yazaki
Female connector

4 pins Binder 719
male connector

3 pins Yazaki
Male connector

Cable split particular

3 pins Yazaki
female connector
Contact insertion view

White
Red
Black

White

White

White
Red
Black

Black
Red
White

Black
Red
White

4 pins Binder 719
male connector
Solder termination view

3 pins YAZAKI
male connector
Contact insertion view

Rif.	Quantità	Titolo/Nome, materiale		N. articolo/Riferimento
Progettato da	Controllato da	Approvato da - Data	Nome file	Data 01/02/2005	Scala

Titolo / Nome: TPS cable for Plug & Play MXL kits

Numero disegno: 04.550.69 — Modifica — Foglio **1 di 1**