

Ducati 999R and 999S

ECU connection



Racing Data Power

INTRODUCTION

AIM has developed special applications for many of the most popular ECU: by special applications we mean user friendly systems which allow to easily connect your ECU to our high tech data loggers: user needs only to install harness between the logger and the ECU.

Once connected, the logger displays (and/or records, depending on the logger and on the ECU data stream and configuration) values like RPM, engine load, throttle position (TPS), air and water temperatures, battery voltage, speed, gear, lambda value (air/fuel ratio) analog channels...

All **AIM** loggers include – free of charge – **Race Studio 2** software, a powerful tool to configure the system and analyze recorded data on your PC.

Warning: once the ECU is connected to the logger it is necessary to set it in the logger configuration in Race Studio 2 software (refer to the ECU protocols for more details).

Warning: for any further information concerning ECU firmware/software settings and/or upgrading it is always recommended to address to the ECU dealer.

1 – Models

IAW 5.9M ECU is installed as stock on many Ducati models (see appendix). ECU protocol has been developed and tested by **AIM** on the following bikes:

- 999R
- 999S

2 – CAN/ K Line communication setup

Ducati ECU is equipped with a CAN and K Line (managed just by **ECU Bridge** and **EVO4**) communication setup used to communicate parameters to an external logger whose standard setup are shown here below.

3 – Connection to AIM loggers

ECU can be connected to **AIM** loggers in three different ways: directly, or using the connector placed on the dashboard (CAN communication), or to the AMP connector (K Line connection). Moreover - depending on the logger - it is possible to connect both lines to the **AIM** data acquisition system.

3.1 – CAN connection

3.1.1 – Direct connection between AIM loggers and Marelli IAW 5.9M ECU

IAW 5.9M is equipped with two 38 pins connectors, named “Body “ and “Engine” – see below: “engine” is black (on the left). “Body” connector is grey (on the right).



To connect **AIM** loggers to Ducati ECU:

- connect **AIM cable labelled CAN+** to **pin 20** of Body connector.
- connect AIM cable labelled CAN- to ground.

3.1.2 – Dashboard connector

Connector is placed on the back of the dashboard (see images below).



To connect **AIM** loggers to ECU using the dashboard connector:

- connect **AIM cable** labelled **CAN+** to **pin 14** (brown/white twisted cable) of the Ducati stock Dashboard connector.
- connect AIM cable labelled **CAN -** to ground.
- **12 V** (connected to the vehicle master switch) is on **pin 21** (red/black cable).

3.2 – K Line connection

There are 2 ways to connect the loggers to K Line on Ducati:

- to ECU straight;
- to AMP connector placed near the ECU (see the related paragraph).

3.2.1 – Direct connection between ECU Bridge or EVO4 to Marelli IAW 5.9 ECU

The connection mode depends on the logger; here below **EVO4** and **ECU Bridge** connections are explained.

EVO4 connection

To connect **EVO4** directly to ECU:

- connect the yellow cable labelled “Linea K” (of the 5 pins male connector supplied with **EVO4** kit) to pin 16 (k line) of the ECU.

Note: put 1K Ohm resistance between Kline and 12V.

ECU Bridge connection

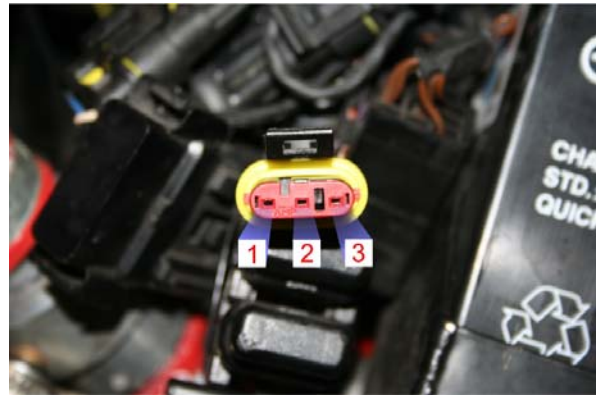
To connect **ECU Bridge** directly to ECU:

- Connect pin 7 of OBDII male connector to pin 16 (K Line) of the ECU.
- VBatt (connected to the vehicle master switch) is on pin 21 (red/black cable) on dashboard connector (see related paragraph).

Note : AIM does not supply a proper interface to connect Ducati to ECU Bridge (OBDII version); it is suggested to build a wiring to allow an easier connection.

3.2.2 – K Line connection using AMP connector

AMP connector is placed near the ECU (see images below). The connection mode depends on the logger; here below **EVO4** and **ECU Bridge** connections are explained.



EVO4 connection

To joint **EVO4** to AMP connector:

- connect yellow cable labelled “Linea K” (of the 5 pins male connector supplied with **EVO4** kit) to pin 3 (orange/white cable) of the AMP connector.
- connect cable labelled GND (of the 5 pins male connector supplied with **EVO4** kit) to pin 2 (purple/black cable) of the AMP connector.

Note: put 1K Ohm resistance between EVO4 and AMP connector.

ECU Bridge connection

To connect **ECU Bridge** to AMP:

- Connect pin 7 of OBDII male connector to pin 3 (orange/white cable) of the AMP connector.
- VBatt (connected to the vehicle master switch) is on pin 21 (red/black cable) on dashboard connector (see related paragraph).

Note : AIM does not supply a proper interface for Ducati to ECU Bridge (OBDII version); it is suggested to build a wiring to allow an easier connection.

4 – Communication protocols

4.1 – CAN configuration

Select on Race Studio Configuration: Manufacturer “DUCATI” and Model “Marelli IAW 5.9M (CAN)”. Channels received by AIM loggers connected via CAN to Ducati IAW 5.9M ECU are:

ID	CHANNEL NAME	FUNCTION
ECU_1	M59_RPM	Rpm
ECU_2	M59_SPEED	Speed
ECU_3	M59_NEUTRAL	
ECU_4	M59_ECT	Engine cooling temperature
ECU_5	M59_AIRT	Air temperature
ECU_6	M59_VBATT	Battery supply
ECU_7	M59_OIL_LIGHT	Oil alert

4.2 – CAN + K Line configuration

Select on Race Studio Configuration: Manufacturer “DUCATI” and Model ” Marelli IAW 5.9M (CAN+K_LINE). Channels received by AIM loggers connected via Can/K line to Ducati IAW 5.9M ECU are (only for **EVO4** and **ECU Bridge** systems).

ID	CHANNEL NAME	FUNCTION
ECU_1	M59_RPM	Rpm
ECU_2	M59_SPEED	Speed
ECU_3	M59_NEUTRAL	
ECU_4	M59_ECT	Engine cooling temperature
ECU_5	M59_AIRT	Air temperature
ECU_6	M59_VBATT	Battery supply
ECU_7	M59_OIL_LIGHT	Oil alert
ECU_10	M59_LK_MAP	Manifold air pressure
ECU_11	M59_LK_TPS	Throttle position sensor
ECU_12	M59_LK_IGNADV1	Ignition advance 1
ECU_13	M59_LK_IGNADV2	Ignition advance 2
ECU_14	M59_LK_INJ_TIME	Injection time

4.3 – K Line configuration

Select on Race Studio Configuration: Manufacturer “DUCATI” and Model “ Marelli IAW 5.9M (K_LINE). Channels received by AIM loggers connected via K Line to Ducati IAW 5.9M ECU are (only for **EVO4** and **ECU Bridge** systems):

ID	CHANNEL NAME	FUNCTION
ECU_1	LK_RPM	Rpm
ECU_2	LK_MAP	Manifold air pressure
ECU_3	LK_AIR_TEMP	Air temperature
ECU_4	LK_ECT	Engine cooling temperature
ECU_5	LK_TPS	Throttle position sensor
ECU_6	LK_IGN_ADV1	Ignition advance 1
ECU_7	LK_BATT	Battery supply
ECU_8	LK_IGN_ADV2	Ignition advance 2
ECU_9	LK_INJ_TIME	Injection time

Appendix

Model	ECU
DUCATI 999	Marelli IAW 5.9M
DUCATI 999 S	Marelli IAW 5.9M
DUCATI 999 R	Marelli IAW 5.9M
DUCATI 749	Marelli IAW 5.9M
DUCATI 749 Dark	Marelli IAW 5.9M
DUCATI 998	Marelli IAW 5.9M
DUCATI 998 Final Edition	Marelli IAW 5.9M
DUCATI 998 Matrix	Marelli IAW 5.9M
DUCATI 998 S	Marelli IAW 5.9M
DUCATI 998 R	Marelli IAW 5.9M
DUCATI MULTISTRADA 620	Marelli IAW 5.9M
DUCATI MULTISTRADA 620 Dark	Marelli IAW 5.9M
DUCATI SPORT1000	Marelli IAW 5.9M
DUCATI 800 SS	Marelli IAW 5.9M
DUCATI 620 SS	Marelli IAW 5.9M
DUCATI 1000 SS TWIN SPARK	Marelli IAW 5.9M
DUCATI 996 R	Marelli IAW 5.9M
DUCATI PAUL SMART 1000 LE	Marelli IAW 5.9M
DUCATI MONSTER 1000S	Marelli IAW 5.9M
DUCATI MONSTER 400 Dark SD	Marelli IAW 5.9M
DUCATI MONSTER 620	Marelli IAW 5.9M
DUCATI MONSTER 620 capirex	Marelli IAW 5.9M
DUCATI MONSTER 620 dark	Marelli IAW 5.9M
DUCATI MONSTER 620 dark SD	Marelli IAW 5.9M
DUCATI MONSTER 620 matrix	Marelli IAW 5.9M
DUCATI MONSTER 750	Marelli IAW 5.9M
DUCATI MONSTER 800	Marelli IAW 5.9M