ECU Bridge

User manual

Racing Data Power

Introduction

Dear customer**,**

ECU Bridge belongs to the last generation of AIM data acquisition systems for car/bike installations.

ECU Bridge is available in two versions:

K line/CAN version - with **OBDII** connector - allows easy and fast Plug&Play connection to OBDII port (**it is suggested for stock ECU**).

RS232/CAN version - with free cables - allows a direct connection to ECU using Serial or Can communication protocol (**it is suggested for both stock and racing ECU**). ECU database is constantly updated. Refer to download area / documentation section of the AIM official website: www.aim-sportline.com for more details.

ECU Bridge samples but does not store data coming from your vehicle. Data can be visualized connecting **ECU Bridge** to a high technology **AIM** dash (**MyChron3 Dash**, **TG Dash**, **Formula Steering Wheel)** or to **SmartyCam**.

ECU Bridge manages 3 different communication protocols:

- K line
- CAN
- Serial RS232

Technical features:

- ECU interface;
- Can protocol for external expansion modules;
- USB port for programming;
- 8/18 V external power.

Indice

Chapter 1 – ECU Bridge: the kits.

The standard ECU Bridge kits are:

ECU Bridge RS232/CAN kit (with free cables, it allows a direct connection to ECU pins).

- **ECU Bridge** RS232/CAN
- USB programming cable
- CD **Race Studio 2**.

ECU Bridge Kline/CAN kit (with OBDII connector, it allows connection to OBDII port placed on the vehicle in the dashboard zone):

- **ECU Bridge** Kline/CAN
- USB programming cable
- CD **Race Studio 2**.

Connectable peripherals:

- **SmartyCam**
- **GPS Module**
- **Data Hub**
- **MyChron3 Dash;**
- **TGDash**
- **Formula Steering Wheel**

1.1 – ECU Bridge kits and spare parts numbers

ECU Bridge kits are different depending on the communication cable (CAN or Serial – RS232).

- **ECU Bridge RS232/CAN** kit (Serial/CAN communication) **X90BGGPI2R**
- **ECU Kline/CAN** kit (OBDII/CAN communication) **X90BGGPI2K**

Spare part number:

- **USB programming cable** V**02563030**

1.2 – Connectable peripherals parts numbers

SmartyCam slave version – 2 mt power cable	**X90SMYCEC2**
SmartyCam slave version – 4 mt power cable	**X90SMYCEC4**
Modulo GPS – Antenna cm 125	**X40GPS3BM125**
Modulo GPS – Antenna cm 400	**X40GPS3BM400**
MyChron3 Dash	**X30VDAM01**
TGDash	**X45VDAM01**
Formula Steering Wheel	**X07VOLFORM**
Data Hub – short cable	**X08HUB010**
Data Hub – long cable	**X08HUB150**

Chapter 2 – ECU Bridge front view

Here above the **ECU Bridge** is shown, with its connector and three cables (two on the right and one on the left side).

USB connector allows **ECU Bridge** configuration using the USB cable supplied with the kit. Configuration is to be made via **AIM Race Studio 2** software, choosing the preferred ECU.

Top right cable allows power supply.

Bottom right cable allows to connect ECU Bridge to ECU or to OBDII port. Please refer to **How to connect ECU Bridge to the ECU** Chapter and to technical drawings for more details about the pinout and the connections.

Left cable allows the connection between **ECU Bridge** and **SmartyCam** or **GPS Module**, or to the displays which must be connect to **Data Hub** or to other accessories.

Chapter 3 – Installation and powering

Please Install **ECU Bridge**, its expansions, the systems, and the displays in a place where the devices are not in contact with heat sources or electromagnetic interference sources (like spark plugs and coil).

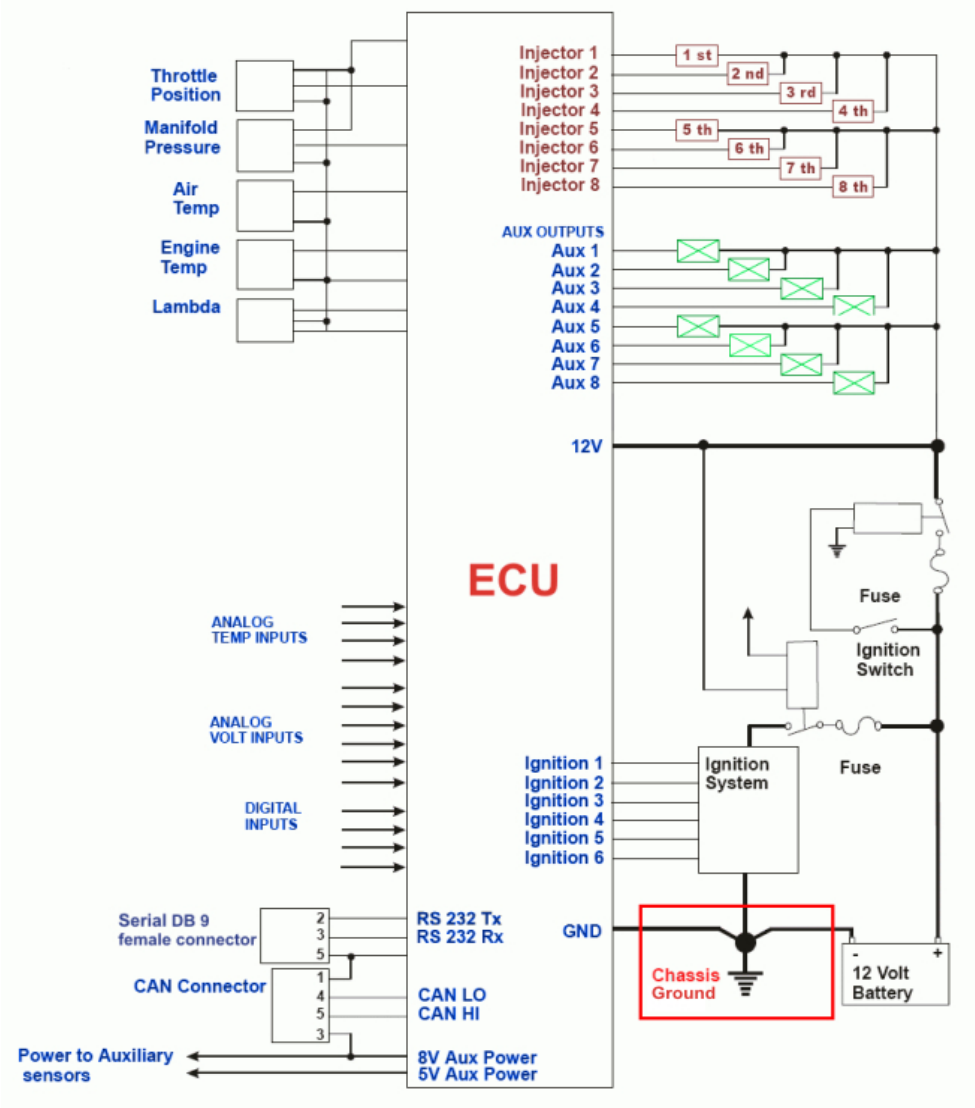
3.1 – How to power ECU bridge

ECU Bridge needs a 8-18 VDC non stabilized power source.

It is suggested to power **ECU Bridge** through the vehicle master switch to save vehicle battery charge.

3.1.1 – GND

For a correct powering and sensors signal stability it is suggested to connect cable labelled GND of **ECU Bridge** powering wiring to the vehicle chassis earth as highlighted in the figure below.



3.2 – How to connect ECU Bridge to the ECU

ECU Bridge can sample data coming from the ECU or the OBDII port.

To be sure that the vehicle ECU is supported by **ECU Bridge** and for further updated information concerning ECU – AIM loggers connection refer to the related documentation freely downloadable from AIM corporate website at the following link:

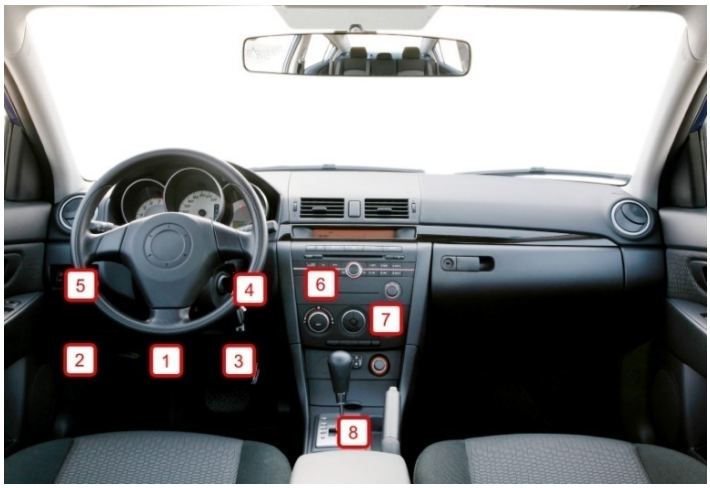
http://www.aim-sportline.com/pages/download/section_documentation_ecus.htm

Always refer to the ECU user manual for any further information concerning pins and cables connection.

To connect **ECU Bridge** to ECU or OBDII port, refer to the following paragraphs.

3.2.1 – OBDII port connection

If we have an **ECU Bridge** Kline/CAN, using vehicle K line or CAN, it is enough to insert the **ECU Bridge** connector into the OBDII port of the car.
In the images here below we show: positions where it is possible to find OBDII port, an OBDII port and an example of connection to OBDII port.



3.2.2. – Direct ECU connection

To connect **ECU Bridge** (RS232/CAN) using a direct connection it is necessary to connect the free cables to ECU pinout.

Using CAN line the connection is:

- CAN+: white wire labelled CAN+ of ECU Bridge to connect to pin correspondent to CAN + of the ECU
- CAN–: blue wire labelled CAN – of ECU Bridge connect to pin CAN - of the ECU

Using RS232 line the connection is:

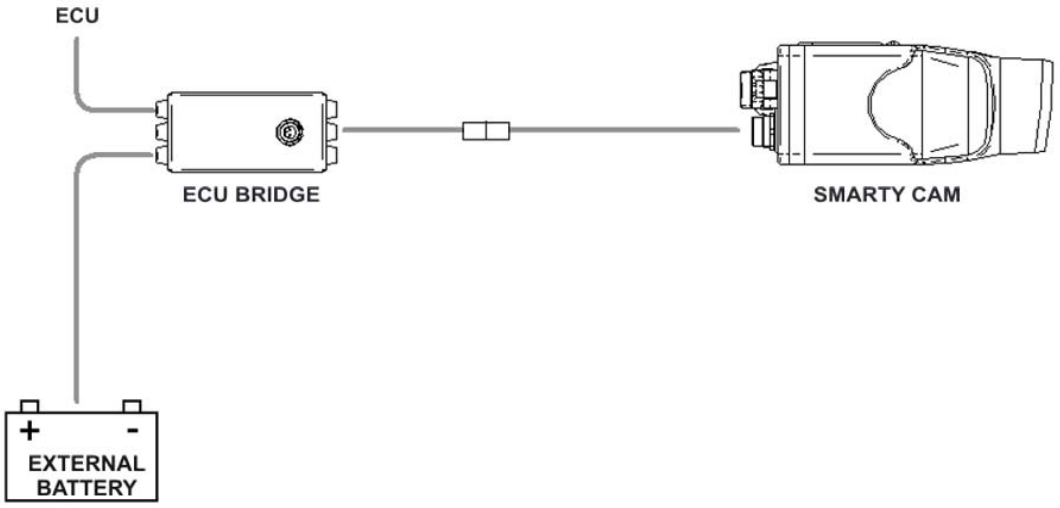
- RS232RX: white wire labelled RS232RX of ECU Bridge to connect to pin RS232TX of the ECU
- RS232TX: blue wire labelled RS232TX to connect to pin RS232RX – of the ECU

Note: for further information concerning ECU – AIM Systems connection, refer to technical documentation downloadable from the official AIM website at this link: http://www.aim-sportline.com/pages/download/section_documentation_ecus.htm

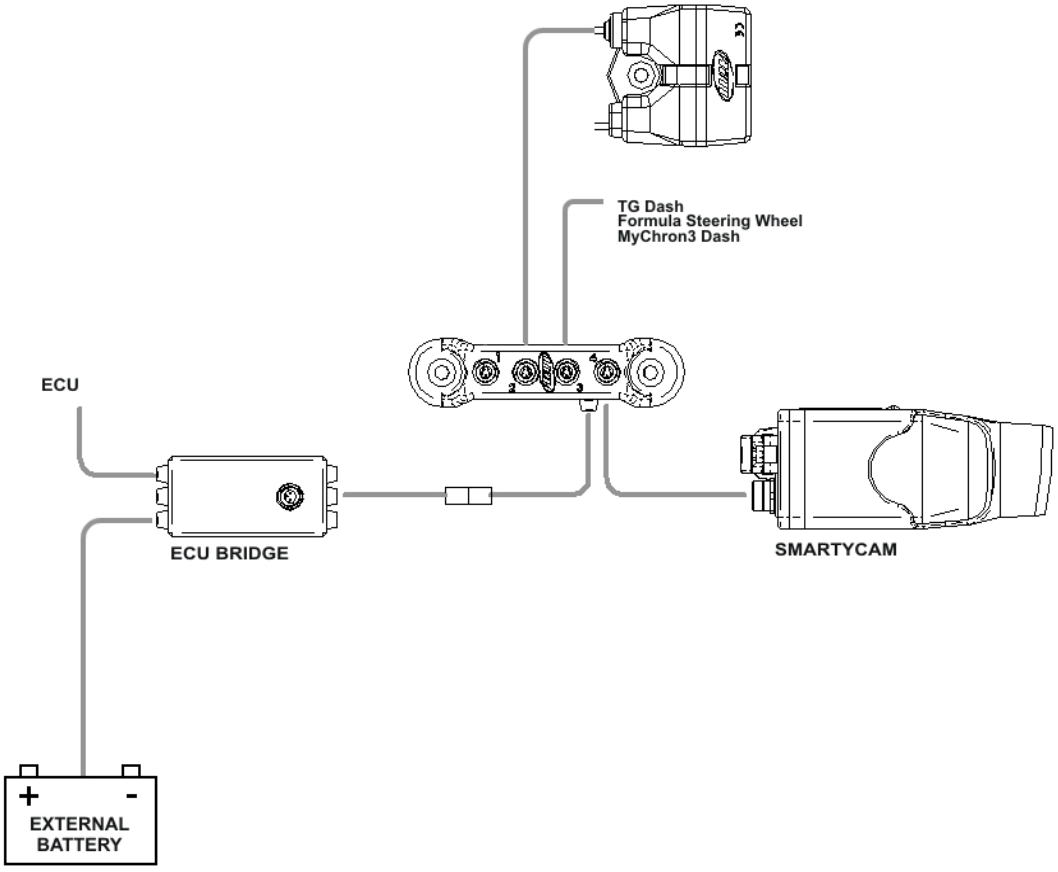
3.3 – How to connect ECU Bridge peripherals

To connect **ECU Bridge,** please refer to the schemes shown below:

Connection to SmartyCam



Connection to the peripherals



Chapter 4 – ECU Bridge software and driver configuration

ECU Bridge must be configured via **Race Studio Configuration** software – that permits the setting of all AIM systems. After connecting **ECU Bridge** to PC (via USB cable) and launching the software, please check "Configuring ECU Bridge" chapter of **Race Studio Configuration** manual. This software is downloadable from **AIM** corporate website www.aim-sportline.com.

For an appropriate **ECU Bridge** use, it is necessary to execute the procedure to calculate the engaged gear. To do so, just enter the track and start running. It is strongly suggested to engage all gears, keeping each gear engaged for at least 5/6 seconds and drive in a smooth way (avoiding sudden accelerations or wheels blocks during brakes). The system will calculate the engaged gear and will show it in the proper field of the display.

In **AIM** corporate website it is possible to find **Race Studio 2** installation procedures under Microsoft Windows XP®, Microsoft Windows Vista®, Microsoft Windows 7 (32 e 64 bit), and the related drivers.

Warning: the logger can be configured only after software and driver installation. Periodically check on www.aim-sportline.com new releases of Race Studio 2 software and/or ECU Bridge firmware.

4.1 – How to configure ECU Bridge display

ECU Bridge can be connected to AIM display to see channels and alerts during the race. The available displays are **MyChron3 Dash**, **TG Dash**, **Formula Steering Wheel.**

Information shown in the different display pages can be configured by the user through Race Studio 2 software.

For further information concerning the displays configuration refer to **Race Studio Configuration** user manual downloadable from www.aim-sportline.com and to the related display user manual.

Chapter 5 – Maintenance

ECU Bridge needs no special maintenance. The only suggested maintenance is a periodic software/firmware update.

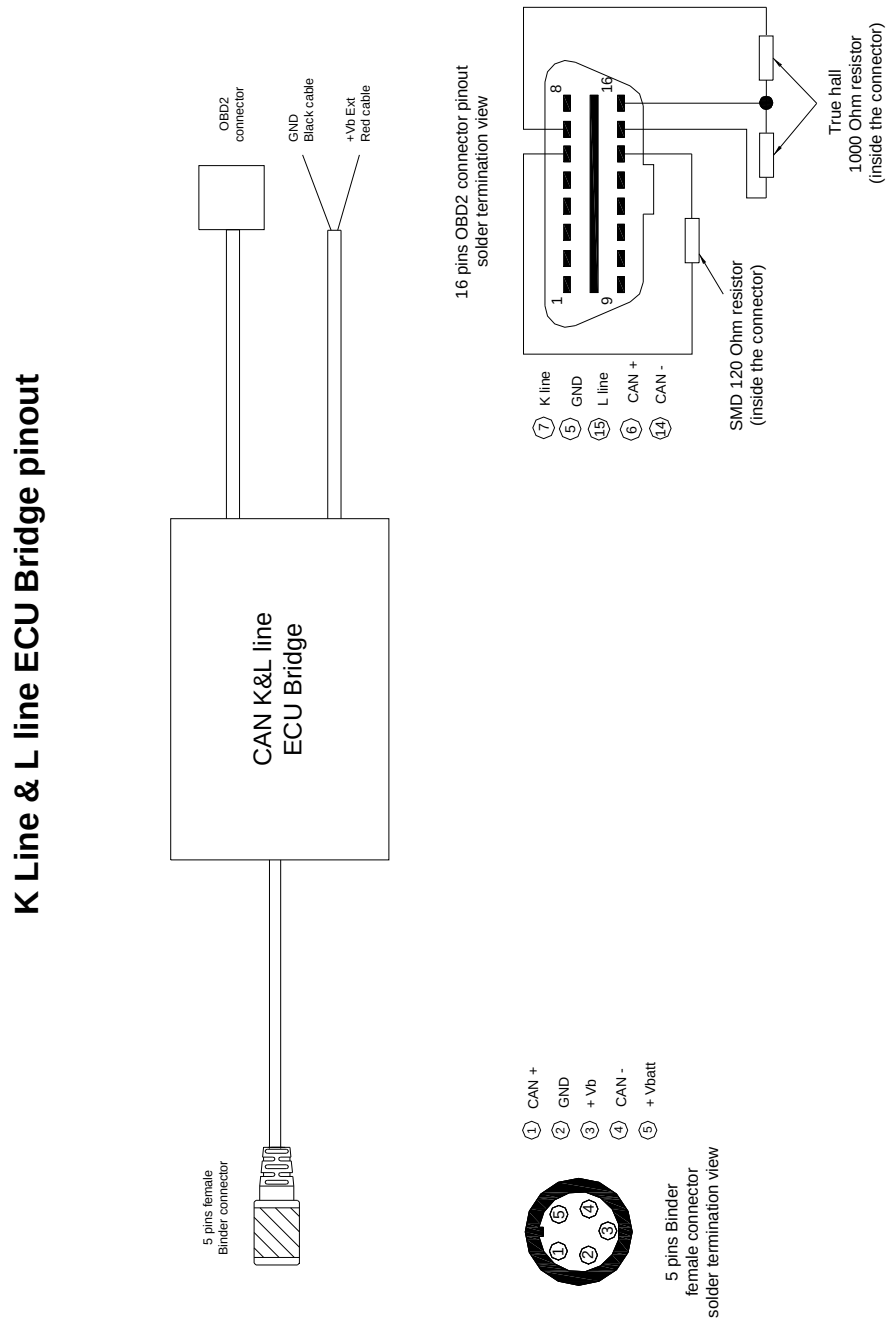
Updates are constantly released by AIM and issued on www.smartycam.com or www.aim-sportline.com download firmware / software area.

To update firmware/software it is necessary to:

- Connect to www.smartycam.com.
- Click on “Firmware” or “Software” depending on what is to be updated: software or firmware.
- Select the software/firmware to be updated.
- Check if any update has been released.
- Download and run them with a double click.
- Follow the instructions that appear on the PC monitor.

Appendix – Technical drawings

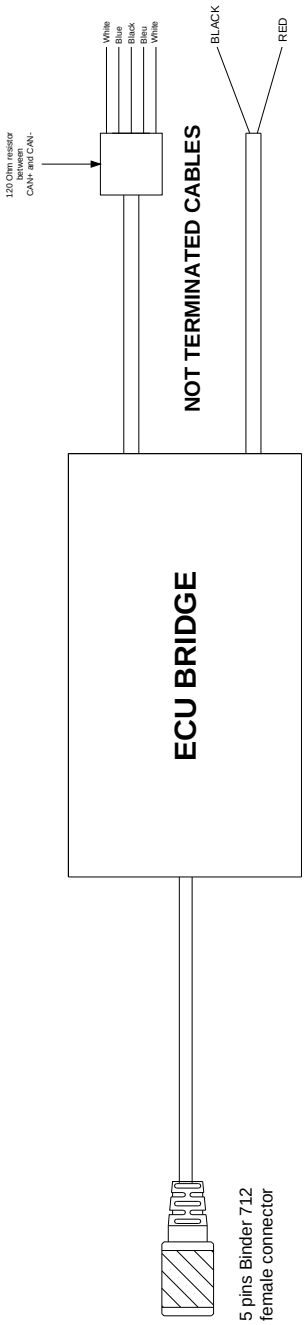
N. rev. / Rev. N.	Descrizione / Description	Data / Date	Firma / Signature	Contr. da / Ckd. by



Rif. / Ref.	Q.tà/Q.ty	Material / Material		N. articolo / Item N.	
Progettato da / Designed by L.I.	Contr. da / Ckd. by	Approvato da / Approved by	Nome file / File name	Data / Date	Scala / Scale
Racing Data Power		Titolo / Title Pinout ECU Bridge CAN linea K &L			
		N. disegno / Drawing N.		Rev. / Rev.	Foglio / Sheet 1 of 1

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

Pinout of ECU Bridge for SmartyCam: CAN/RS232 protocol



Not terminated cables pinout		
Cable colour	**Fonction**	
White	CAN1+	
Blue	CAN1-	
Black	GND	
Blue	RS232TX	
White	RS232RX	
Black	GND	
Red	+Vbext	

5 pins Binder 712 female connector pinout contact insertion view		
Pin	Fonction	
1	CAN+	
2	GND	
3	+Vb	
4	CAN-	
5	Vbext	

Rif. / Ref.	Q.tà / Q.ty	Materiale / Material		N. articolo / Item N.	
Progettato da / Designed by: **L.I.**	Contr. da / Ckd. by	Approvato da / Approved by	Nome file / File name	Data / Date	Scala / Scale
Racing Data Power		Titolo / Title: Collegamento cavi SmartyCam -ECU Bridge protocollo CAN/RS232			
		N. disegno / Drawing N.		Rev. / Rev.	Foglio / Sheet: **1 of 1**