



**Gems ECU for
Lancer EVO X**



INDEX

Chapter 1 – Car models.....	1
Chapter 2 – CAN communication setup.....	1
Chapter 3 – Connection with AIM loggers	2
3.1 – ECU connection.....	2
3.2 – Differential Control Unit Connection.....	3
3.2 – Differential Control Unit Connection.....	3
Chapter 4 – Lancer EVO X – Gems ECU – communication protocol.....	4

INTRODUCTION

AIM has developed special applications for many of the most common ECUs: by special applications we mean user-friendly systems which allow to easily connect your ECU to our hi-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) 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.

Select Manufacturer “GEMS” and Model “Lancer EVO X”.

Refer to Race Studio configuration user manual for further information concerning the loggers configuration.

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

Chapter 1 – Car models

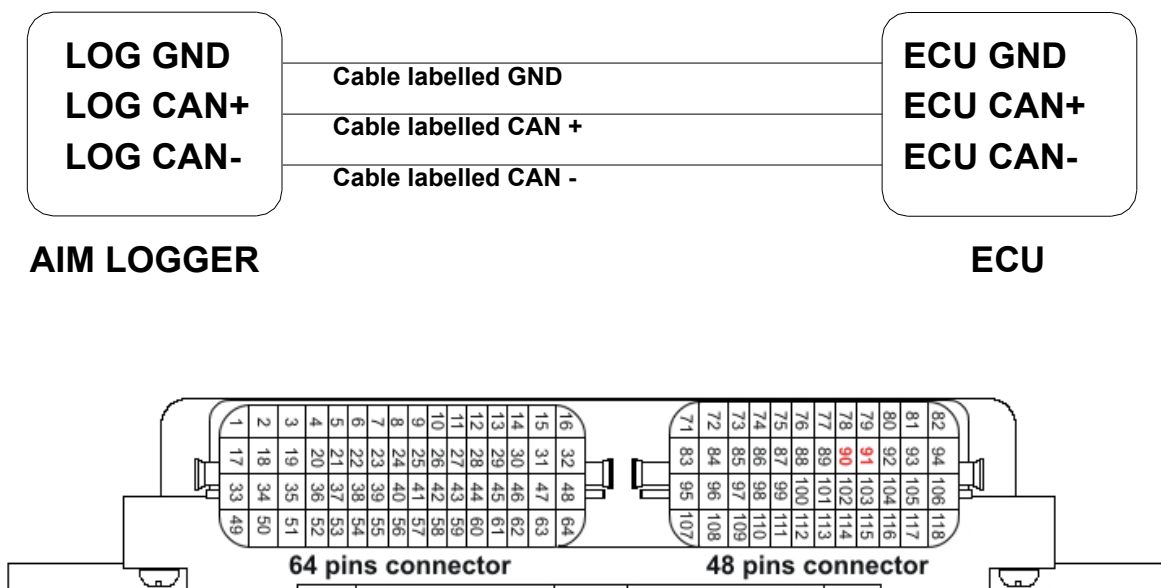
Gems ECU can be installed on the following car model:

- Mitsubishi Lancer EVO X

Chapter 2 – CAN communication setup

The ECU has a CAN communication protocol used to communicate parameters to a data logger and is equipped with 2 connectors (64 and 48 pins) used to communicate parameters to an external data logger, or to configure the ECU itself.

The images here below show the standard CAN communication set up on top and the connectors on bottom. The pins used to communicate with AIM loggers are situated in the 48 pins connector and are highlighted in the figure below.



Chapter 3 – Connection with AIM loggers

Mitsubishi Lancer EVO X ECU can be connected to AIM loggers in two different ways:

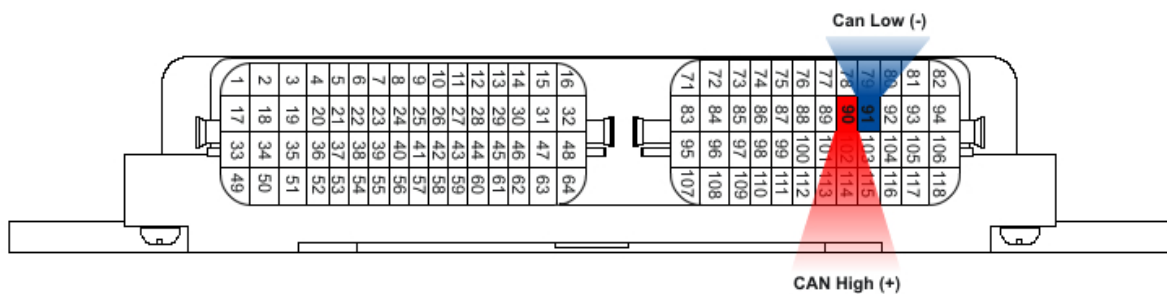
- connecting AIM logger to the vehicle ECU
- connecting AIM logger to the Differential control unit.

3.1 – ECU connection

To connect AIM logger to the ECU connect:

- AIM cable labelled CAN + with **pin 90** of the 48 pins connector of the ECU
- AIM cable labelled CAN – with **pin 91** of the 48 pins connector of the ECU

The image here below show the pins.

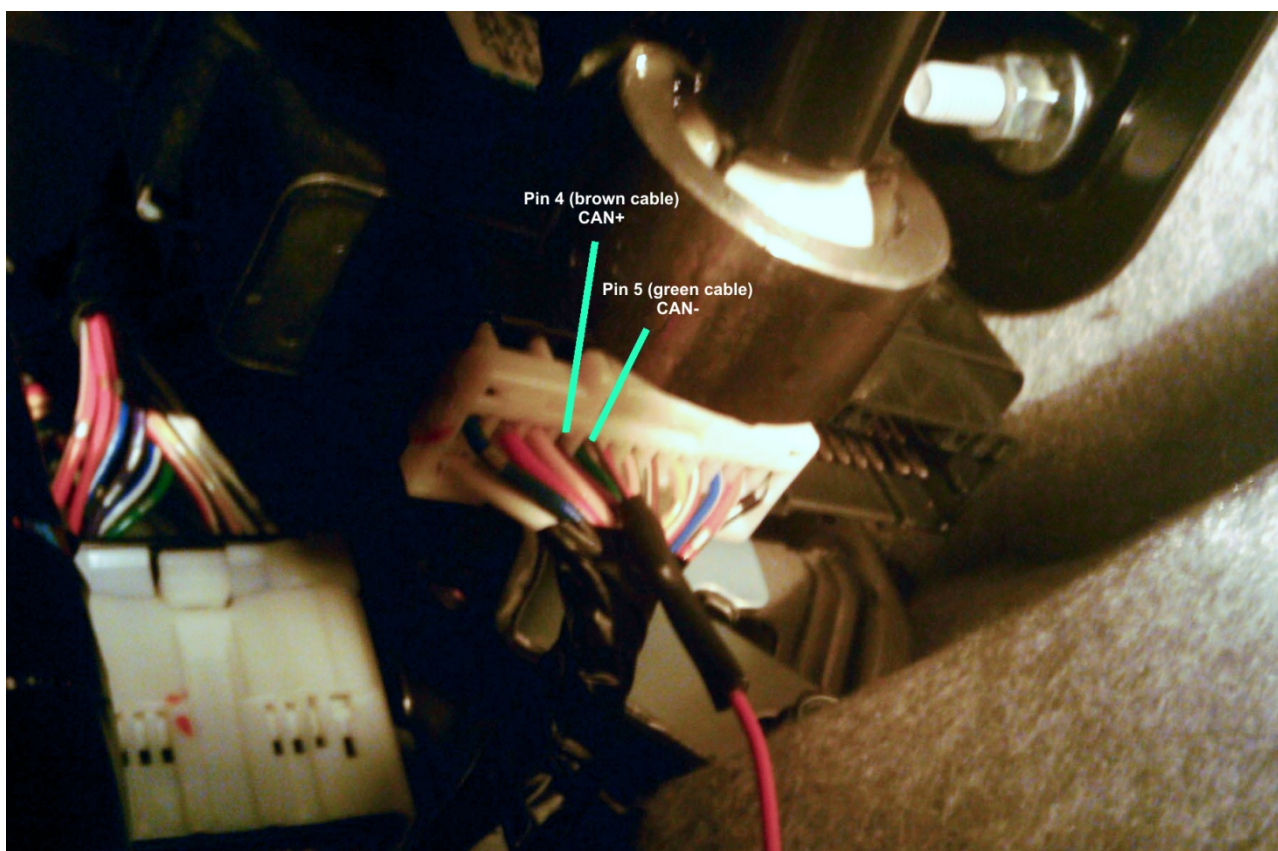
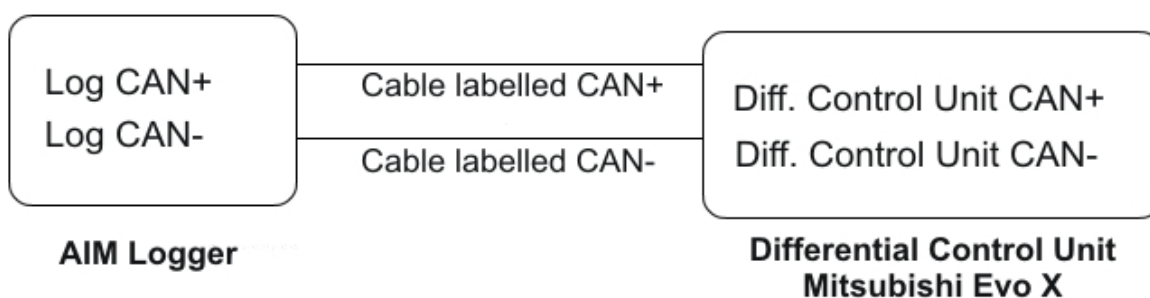


3.2 – Differential Control Unit Connection

To connect AIM logger to the Differential Control Unit connect

- AIM cable labelled CAN+ to pin 4 (brown cable) of the Differential Control Unit placed on the left of the clutch pedal.
- AIM cable labelled CAN – to pin 5 (green cable) of the Differential Control Unit placed on the left of the clutch pedal.

The images here below shows Differential Control Unit connection on top and the cable position on bottom.



Chapter 4 – Lancer EVO X – Gems ECU – communication protocol

Channels received by AIM loggers connected to Lancer EVO X ECU are:

ID	CHANNEL NAME	FUNCTION
ECU_1	EVOX_RPM	RPM
ECU_2	EVOX_SPEED	Speed
ECU_3	EVOX_SPEED_FL	Front left wheel speed
ECU_4	EVOX_SPEED_FR	Front right wheel speed
ECU_5	EVOX_SPEED_RL	Rear left wheel speed
ECU_6	EVOX_SPEED_RR	Rear right wheel speed
ECU_7	EVOX_PPS	Pedal position sensor
ECU_8	EVOX_ENG_TEMP	Engine temperature
ECU_9	EVOX_TURBO_PRESS	Turbo pressure
ECU_10	EVOX_SEL_MAP	Selected ECU Map
ECU_11	EVOX_TPS1	Throttle position sensor 1
ECU_12	EVOX_TPS2	Throttle position sensor 2
ECU_13	EVOX_TPS3	Throttle position sensor 3
ECU_14	EVOX_TPS_IN	Throttle request