

Lexus B0CZLHG7X2 Mobile Charger



AiM ECULog Compact Data Logger User Guide

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AiM ECULog Compact Data Logger



Product Information

Specifications:

- Supported ECUs: CAN, RS232, or K-Line to 1,000+ industry-leading ECUs
- Compatible with Channel Expansion, ACC, ACC2, LCU-One CAN, LCU1, SmartyCam 3 Series, GPS09c/GPS09c Pro
- Operating Temperature: 9-15°C
- Connectors: 1 socket 5 pins Binder 712 connector, 1 socket 7 pins Binder 712 connector, 1 USB Type-C
- Storage: 4GB internal memory + removable USB-C memory card
- Material: PA6 GS30%
- Dimensions: 61.4 x 44.7 x 24.2mm
- Weight: Approximately 100g
- Protection: IP65 rated

Product Usage Instructions

Entering ECU Stream Tab:

To select the connected ECU and enable corresponding channels:

1. Access the ECU Stream tab.
2. Choose the ECU supplying fuel level information.

3. Software will inform the user and enable the corresponding channel in the Channels Tab.

Configuring CAN Expansions:

To configure CAN expansions and channels:

1. Access the CAN Expansions tab.
2. Configure each expansion through the dedicated panel.
3. Refer to individual user manuals for detailed information on configurations.

Frequently Asked Questions

Q: What is the default protocol for AiM CAN data transmission?

A: AiM default protocol transmits a limited range of information suitable for various installations.

Q: How does ECULog transmit CAN data stream?

A: ECULog can transmit a CAN data stream containing required channels on AiM CAN bus, similar to SmartyCam 3 advanced stream.

ECULog in a few words

ECULog is a little, light and easy to use logger that samples and records channels coming from the vehicle ECU and from the connected CAN expansions. It records the data both into the internal 4GB not volatile memory and in the USB-C memory card. ECULog allows the user to create math channels as well as a CAN Output using both the channels supplied by the vehicle ECU and these supplied by AiM CAN Expansions. All channels can also be displayed on SmartyCam videos when available.

AiM supported expansions are:

- GPS09c Pro
- GPS09c Pro Open
- LCU-One CAN
- LCU1
- Channel Expansion
- ACC
- ACC2
- ACC2 Open

Available kits

ECULog is available in different kits.

ECULog CAN/RS232 kit: part number

- ECULog (1)
- 2m CAN/RS232+External power cable (2)
- 2m USB 2.0 Type A – Type C cable (3)
- 16GB Mini USB Drive (4)



ECULog OBDII kit: part number

- ECULog (1)
- 2m CAN/OBDII +power cable (2)
- 2m USB 2.0 Type A-Type C cable (3)
- 16GB Mini USB Drive (2)



Accessories and spare parts:

- 2m CAN/RS232 +power cable V02.589.050
- 2m CAN/OBDII/K-Line + power cable V02.589.040

- 2m USB 2.0 Type A-Type C cable X90TMPC101010
- 16GB mini USB Drive 3IRUSBD16GB

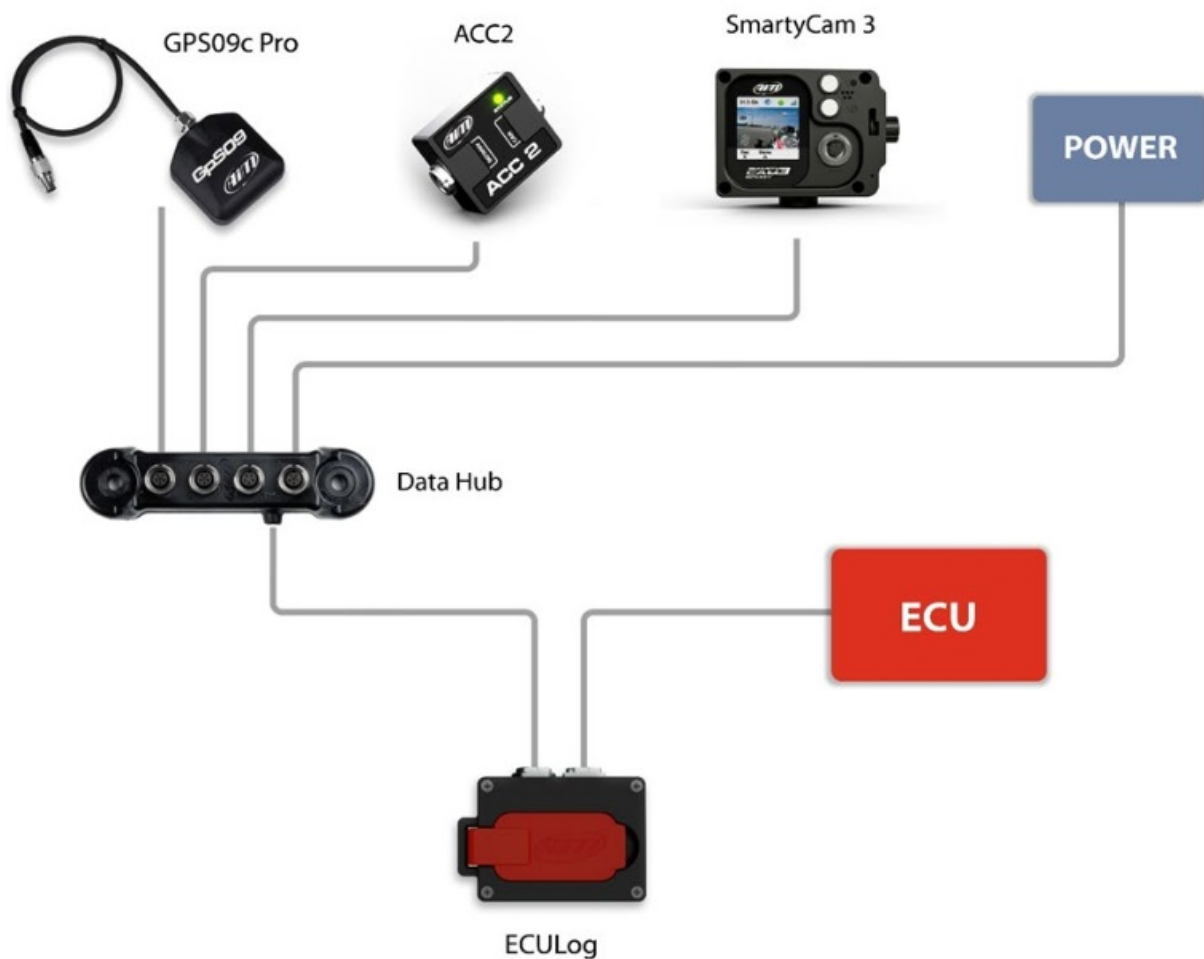
Please note: for connecting ECULog to the PC use the 2m USB2.0 Type A-Type C cable whose part number is X90TMPC101010 you find in the kit. Any connection using an USB C – USB C cable may not work properly.

ECULog expansions and connections

ECULog supports the following AiM expansions:

- GPS09c Pro
- GPS09c Pro Open
- LCU One CAN
- LCU1
- Channel Expansion
- ACC
- ACC2
- ACC2 Open

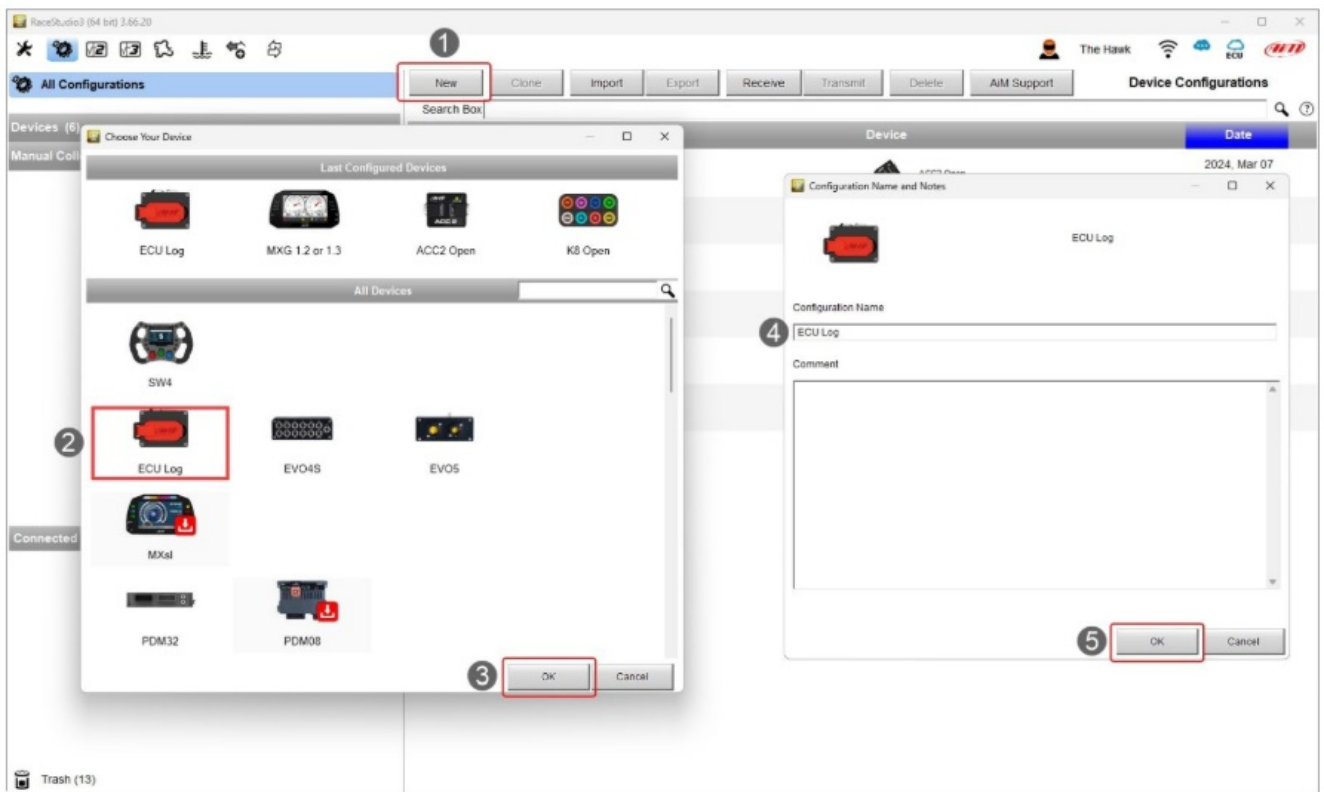
The image below shows an example of AiM CAN Network.



Configuration with RaceStudio 3 software

To configure ECULog follow these steps:

- run RaceStudio 3
- press “New” button on the top right keyboard (1)
- select ECULog (2)
- press “OK” (3)
- name the configuration if desired (default name is ECULog – 4)
- press “OK” (5).

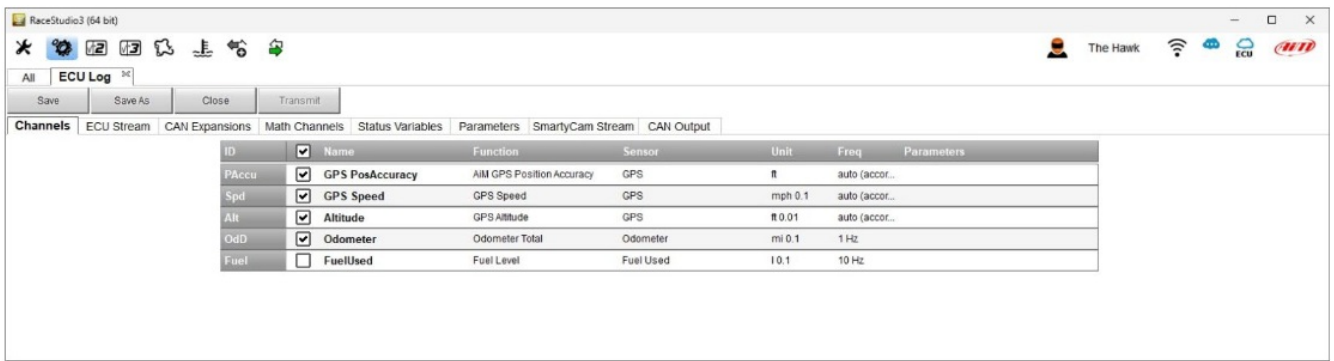


Once the configuration created it is necessary to configure, when possible, the following tabs:

- Channels
- ECU Stream
- CAN Expansions
- Math Channels
- Status Variables
- Parameters
- SmartyCam Stream
- CAN Output

Channels configuration

- Once the configuration created, the software enters “Channels” tab.



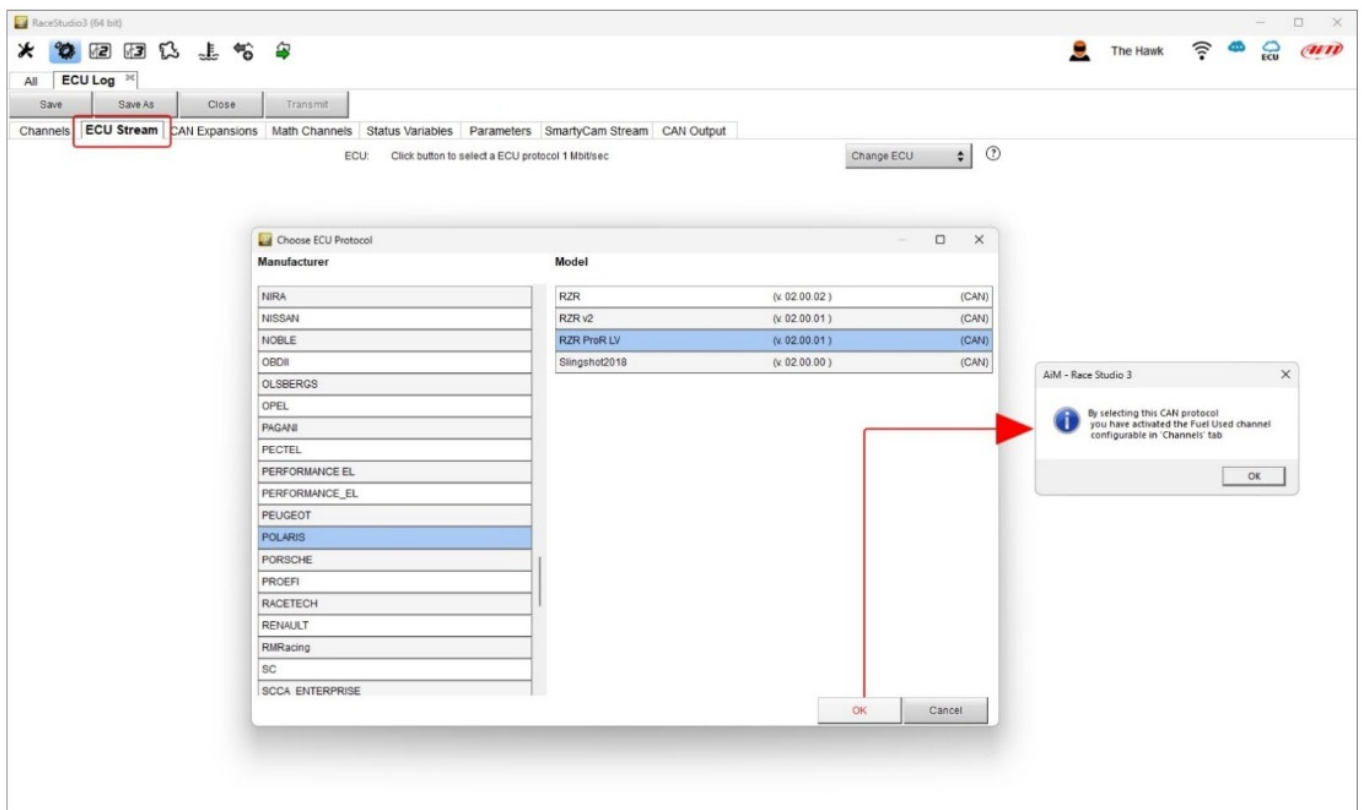
It shows GPS channels, as well as odometer and it is possible to specify the fuel level. For these information to be available it is mandatory:

- to connect an optional GPS09c Pro/09c Pro Open Module using a DataHub, as shown in chapter 3
- to have an ECU that supplies fuel level information or to connect and configure a custom sensor.

Setting an ECU that supplies fuel level information in “ECU Stream” tab (paragraph 4.2) the software informs the user.

ECU Stream configuration

Entering “ECU Stream” tab a panel where to choose the connected ECU is prompted.



Selecting an ECU that supplies information about fuel level the software informs the user as shown above and the corresponding channel is enabled in “Channels” Tab.

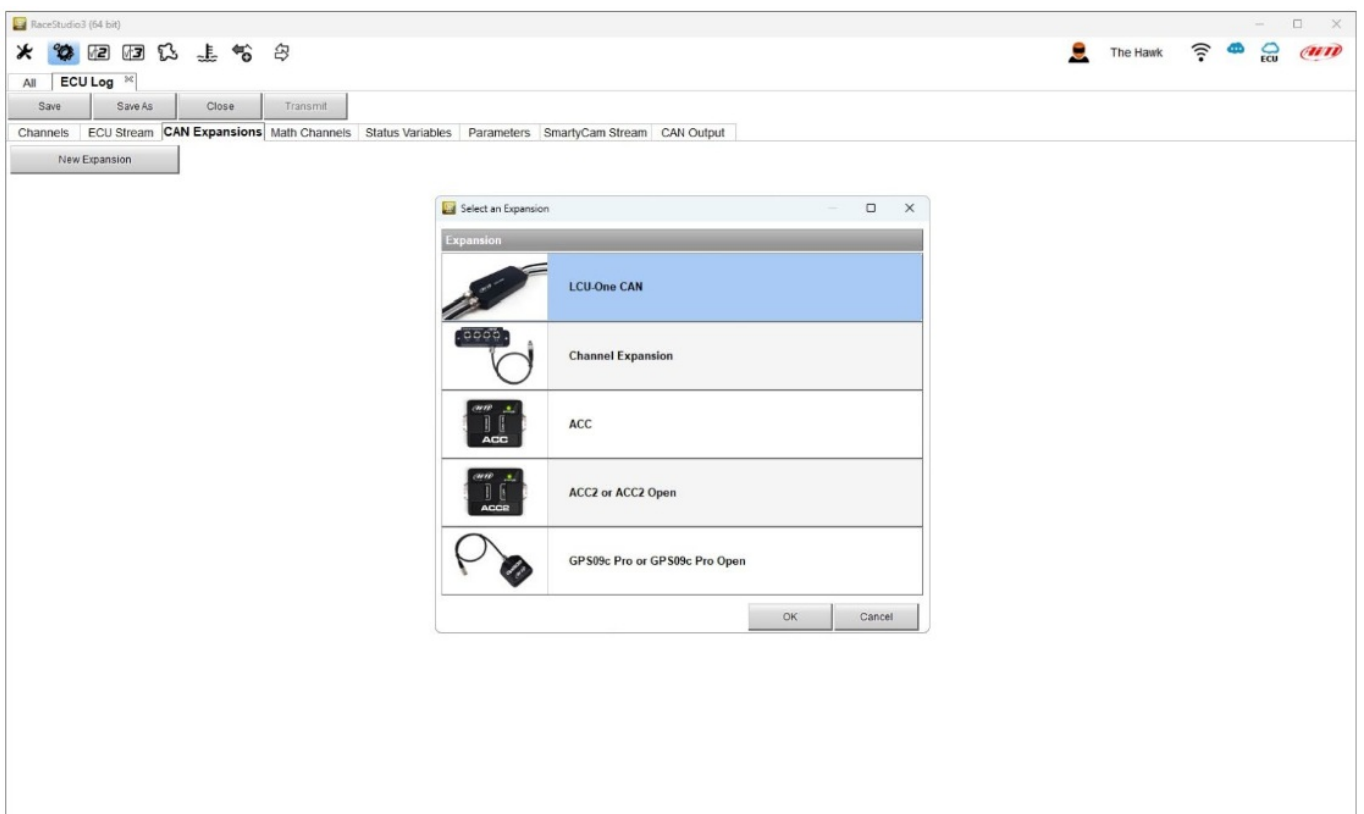
All ECU Log							
Save Save As Close Transmit							
Channels	ECU Stream	CAN Expansions	Math Channels	Status Variables	Parameters	SmartyCam Stream	CAN Output
ID	<input checked="" type="checkbox"/>	Name	Function	Sensor	Unit	Freq	Parameters
PAccu	<input checked="" type="checkbox"/>	GPS PosAccuracy	AIM GPS Position Accuracy	GPS	ft	auto (accor...	
Spd	<input checked="" type="checkbox"/>	GPS Speed	GPS Speed	GPS	mph 0.1	auto (accor...	
Alt	<input checked="" type="checkbox"/>	Altitude	GPS Altitude	GPS	ft 0.01	auto (accor...	
OdD	<input checked="" type="checkbox"/>	Odometer	Odometer Total	Odometer	mi 0.1	1 Hz	
Fuel	<input checked="" type="checkbox"/>	FuelUsed	Fuel Level	Fuel Used	l 0.1	10 Hz	

CAN Expansions configuration

Entering "CAN Expansions" tab a selection panel is prompted.

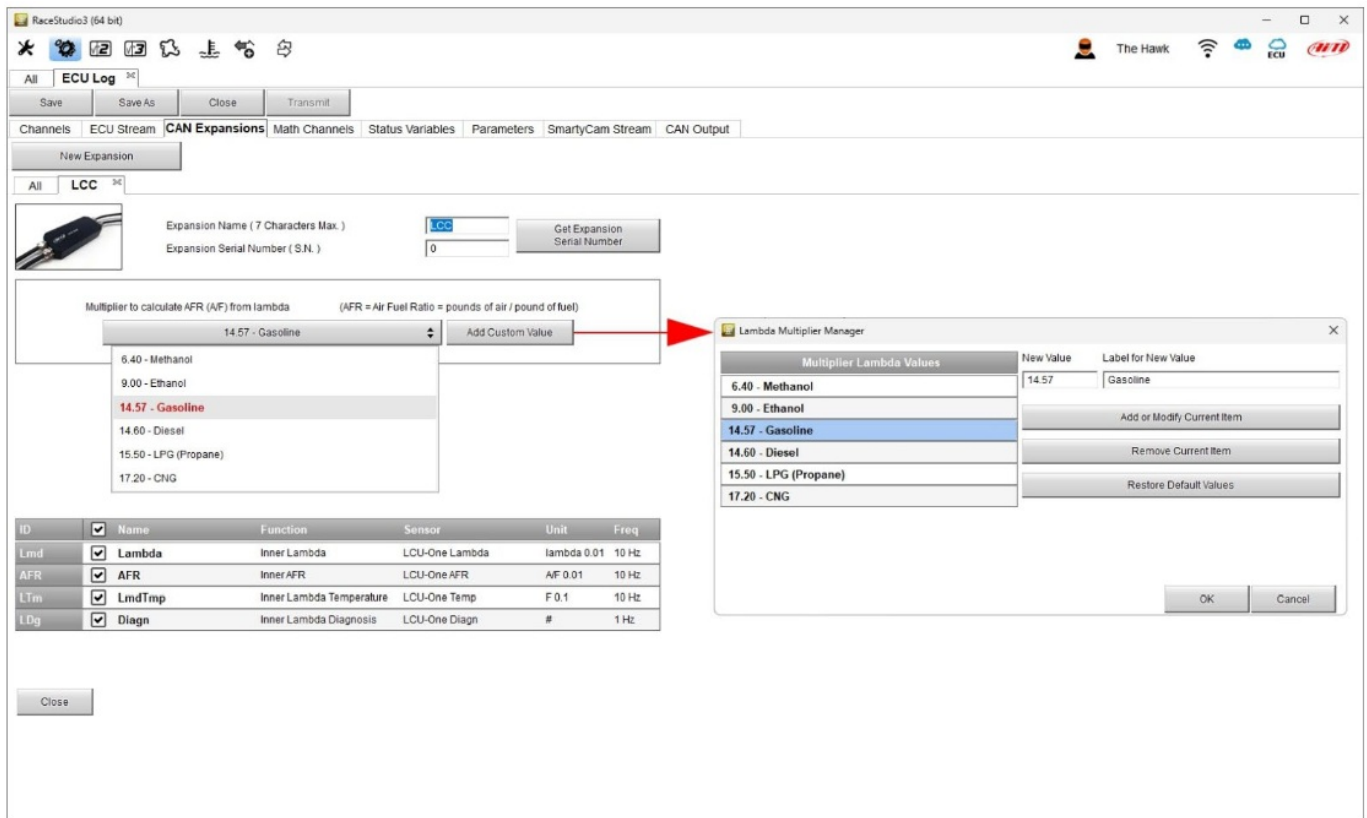
Each expansion needs to be configured through the dedicated panel. In the following pages they are shown. Please refer to the single user manuals for further information.

LCU-One CAN setting panel. It is possible to select the multiplier to calculate AFR from lambda and add a custom value.



Channel Expansion and ACC, ACC2 (all versions) are mutually exclusive; this is why setting one of them the others will not be available in CAN Expansions list.

Channel Expansion channels can be set as digital or as analog.



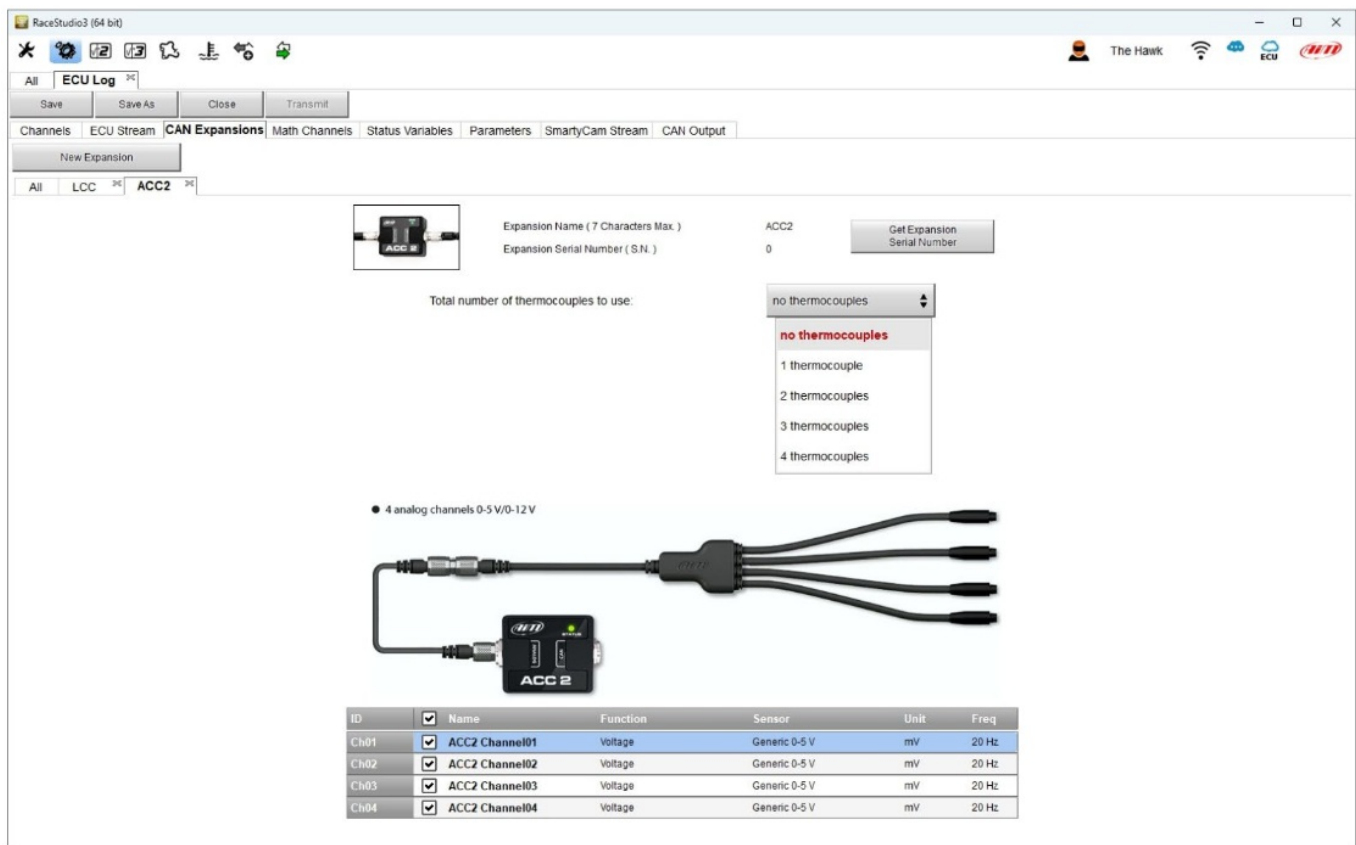
ACC, ACC2 (all versions) and Channel Expansion are mutually exclusive; this is why setting one of them the others will not be available in available CAN Expansions list.

ACC setting panel. Clicking on each channel a configuration panel is prompted.

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ACC2 and ACC2 Open can support up to four thermocouple. Selecting the number of thermocouple sensors it is supposed to connect the corresponding channels in the table bottom of the view switches to temperature channel; the remaining channels are configurable using the configuration panel that is prompted clicking the corresponding channel row in the table.

Please note: ACC2 Open as an expansion works exactly as ACC2.



GPS09c Pro and GPS09c Pro Open

Clicking the channels it is possible to set: name. display name and display precision.

Lexus-B0CZLHG7X2-Mobile-Charger-fig-13

Math channels configuration

As for any other AiM logger it is possible to add Math channels choosing them in a wide library. This can be done using the channels provided by the vehicle ECU or adding and configuring optional custom sensors.

To create math channels; available options are:

- Bias: considering a relation between two mutually compatible channels it computes which one is prevailing (typically used for suspensions or brakes);
- Bias with threshold: it needs the user to set a threshold value for the considered channels; once these threshold are both exceeded the system makes the calculation;
- Calculated gear: it calculates the gear position using engine RPM and vehicle speed
- Precalculated gear: it calculates the gear position using Load/Shaft ratio for each gear and for the vehicle axle too
- Linear correction: typically used when a channel is not available in the desired format or if it is wrongly tuned and cannot be tuned again
- Simple operation: to add or subtract from a channel value a constant value or another channel value
- Division Integer: to get the integer part of the division
- Division Modulo: to get the remainder part of the division

- Bit composed: to compose 8 flags in a bit-field measure Each option asks the user to fill in a proper panel.

Lexus-B0CZLHG7X2-Mobile-Charger-fig-14

Status Variables configuration

As any AiM logger ECULog allows to set different Status Variables. To do so press “Add Status Variable” button and fill in Name and display label. Status variable values can also be recorded enabling the related top left checkbox (highlighted below).

They can work as:

- Momentary: when operating condition occurs output sets to “Active” status; as soon as it is released output comes back to its resting “not active” status; labels can be edited
- Toggle: when operating condition occurs output sets to “Active” status even after releasing the button; when pressed again output comes back to its resting “not active” status; labels can be edited
- or Multiposition: see following pages.

Status variables can be activated/deactivated using:

- the same conditions for both actions
- distinct conditions for activation and deactivation
- multiple output values each with its own condition

The condition can be:

- always True
- always False
- custom

As shown here below Momentary and toggle working mode only allows to generate a square wave whose duration of each status can be customized.

Lexus-B0CZLHG7X2-Mobile-Charger-fig-16

When the status variable is set as Multiposition the different positions as well the time threshold (if desired) need to be set. On the contrary activation/deactivation conditions, possibility to record values and condition type are the same of Momentary and Toggle working mode.

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Parameters configuration

Parameters Tab allows to set:

Lap Detection (1): you can set the seconds the lap time is hold on the display; available options are:

- from GPS: track width needs to be filled in
- from optical beacon: it is possible to set a time period during which additional lap signals are ignored to avoid double lap time recording.

Reference Speed (2):

default setting is “GPS Speed” but if an additional speed source is available it is possible to change it pressing the related button.

Start data recording conditions (3):

default condition is RPM greater than 850 or speed is greater than 6 mph but pressing “Add” button it is possible to customize the conditions through the panel that is prompted.

Lexus-B0CZLHG7X2-Mobile-Charger-fig-18

SmartyCam Stream

ECULog can be connected to both AiM SmartyCam 2 and SmartyCam 3 through the CAN Bus to show the desired data on SmartyCam video. The logger transmits data to the Cameras in two slightly different ways according to the camera and to the fixed setting. Available options are:

- SmartyCam 2 and SmartyCam 3 Default
- SmartyCam 3 Advanced

For ECULog to transmit each channel when connected to SmartyCam 2 or SmartyCam 3 default:

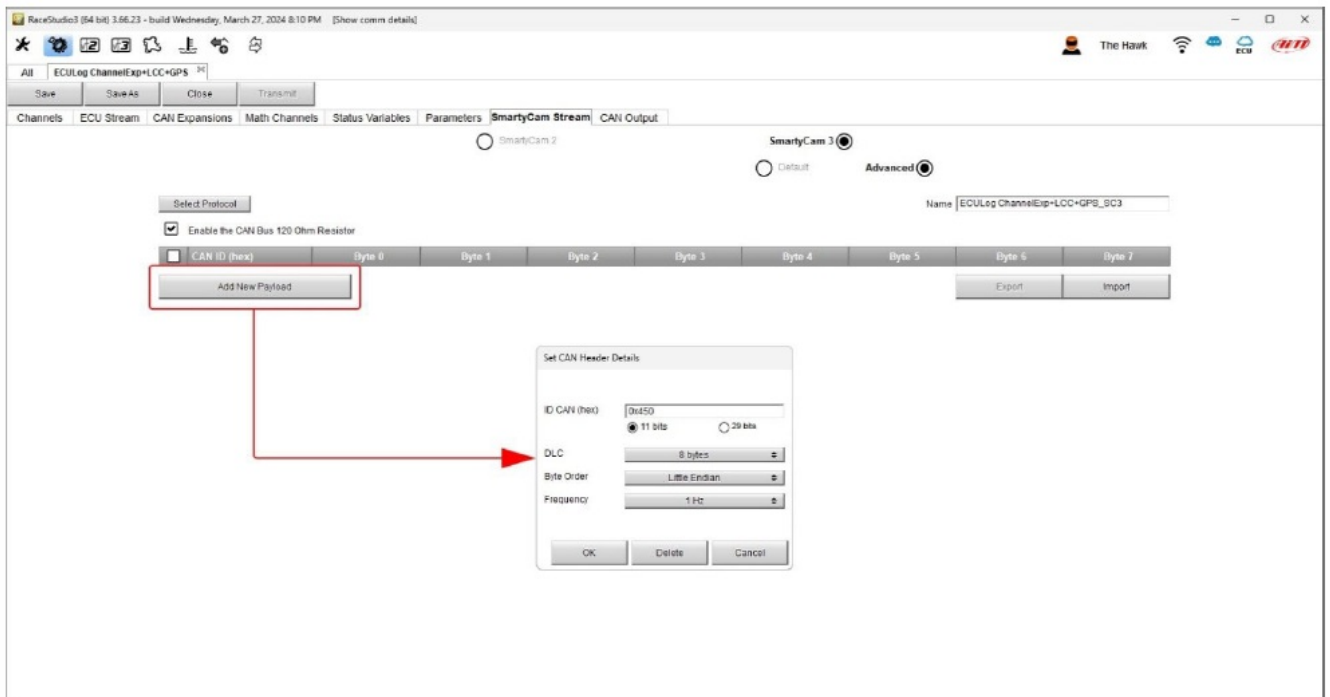
- enter “SmartyCam stream” tab
- it shows all channels and/or sensors that fits the selected function
- in case the desired channel or sensor is not in the list enable “Enable all channels for functions” checkbox and all channels/sensors will be shown

AiM default protocol transmits a rather limited range of information, enough for a wide range of installation.

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To transmit a different set of information a SmartyCam 3 with advanced setting is needed; please note: this function is for expert users only. Please follow this procedure:

- configure ECULog in order to transmit a different SmartyCam stream
- select the SmartyCam stream in SmartyCam 3 configuration
- select “SmartyCam 3 → Advanced” option in SmartyCam Stream tab
- press “Add new Payload”
- create your desired stream defining the required IDs fields and save it pressing “OK”
- name the protocol



CAN Output configuration

The logger can transmit a CAN data stream containing the channels required on AiM CAN bus. It works exactly as SmartyCam 3 advanced stream.

Transmitting the configuration to ECULog

Once all the tabs set ECULog configuration needs to be saved pressing the related button on the keyboard top left of the configuration Tab.

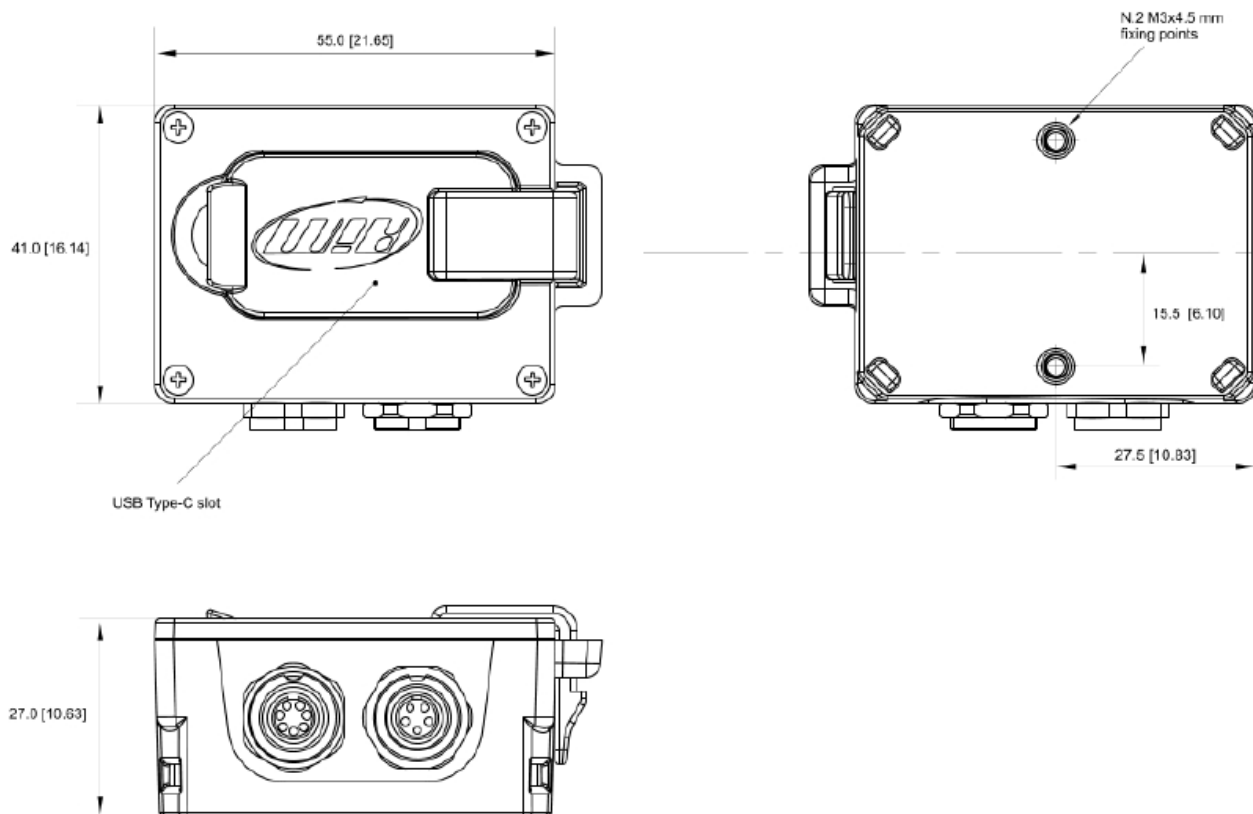
When the configuration has been saved transmit it to ECULog pressing “Transmit” button on the same keyboard.

ECULog needs to be connected to the PC through the USB A – USB C cable.

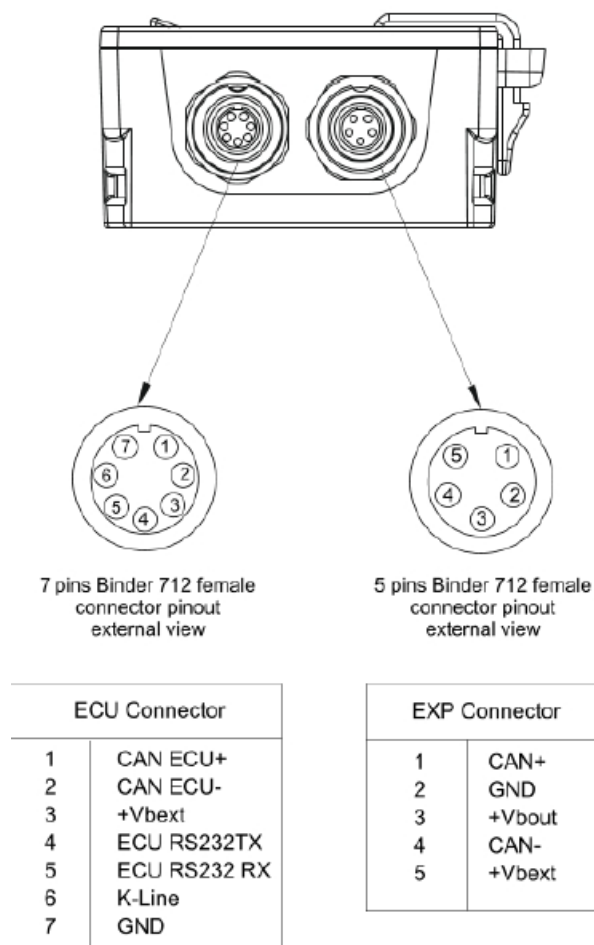
Once the configuration saved press “Transmit” button on the same keyboard.

Dimensions, pinout and technical characteristics

The image below shows ECULog dimensions in mm [inches].



The image below shows ECULog pinout.




Technical characteristics

- ECU connection: CAN, RS232 or K-Line to 1.000+ industry leading ECUs

- Expansions: Channel Expansion, ACC, ACC2, LCU-One CAN, LCU1, SmartyCam 3 Series, GPS09c/GPS09c Pro
- External Power: 9-15C
- Connectors: 1 socket 5 pins Binder 712 connector 1 socket 7 pins Binder 712 connector 1 USB Type-C
- Memory 4GB + removable USB-C memory card
- Material: PA6 GS30%
- Dimensions: 61.4×44.7×24.2mm
- Weight: 100g approximately
- Waterproof: IP65

Documents / Resources

	<p>AiM ECULog Compact Data Logger [pdf] User Guide X08ECULOGCRS200, X08ECULOGOBD200, V02.589.050 V02.589.040 X90TMPC101010 3IR USBD16GB, ECULog Compact Data Logger, ECULog, Compact Data Logger, Data Logger, Logger</p>
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References

- [User Manual](#)

[Manuals+.](#) [Privacy Policy](#)

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