

User Manual

XLog

Release 1.02





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1 - XLog in a few words

XLog is a small, versatile, light and easy to use logger that samples and records channels coming from:

- the vehicle ECU
- RPM input, in case your vehicle has not an ECU
- a second CAN that can be a completely configurable bus or an AiM CAN expansion bus.
- an internal 25Hz GPS receiver
- an internal 100 Hz 6 axis Inertial Platform

Moreover, it features an internal Lithium-ion battery that keeps it recording for about 10 hours. The data are recorded into the 4GB not volatile internal memory and into the 16 GB USB-C removable memory key, if available.

XLog offers further features such as:

- fully configurable CAN Output messages
- math channels
- fully configurable CAN Input protocol to communicate with the ECU and any other CAN device.

A wide range of AiM expansions are available, as explained in chapter 3.



2 - Available kits

XLog is available in different kits.

XLog RPM 200 kit:

X08XLOGRPM200

- XLog
- 2m RPM + External power cable
- 2m USB 2.0 Type A – Type C cable
- 16GB Mini USB Drive

XLog OBDII 200 kit:

X08XLOGOBD200

- XLog
- 2m CAN/OBDII/K-Line + External power cable
- 2m USB 2.0 Type A-Type C cable
- 16GB Mini USB Drive

XLog CAN/RS232 200 kit:

X08XLOGCRS200

- XLog
- 2m CAN/RS232 + External power cable
- 2m USB_A - USB_C cable
- 16GB Mini USB Drive

Accessories and spare parts:

- | | |
|--|----------------------|
| • 2m RPM + External power cable | V02.589.020 |
| • 2m CAN/OBDII/K-Line + External power cable | V02.589.040 |
| • 2m CAN/RS232 + External power cable | V02.589.050 |
| • 2m USB 2.0 Type A-Type C cable | X90TMPC101010 |
| • 16GB USB-C Memory support | 3IRUSBD16GB |

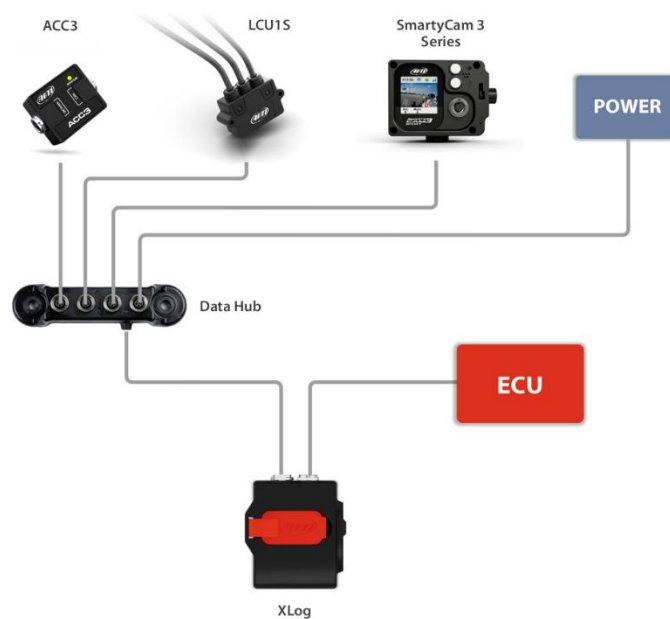
Please note: use the **2m USB2.0 Type A-Type C cable** whose part number is **X90TMPC101010** you find in the kit to connect XLog to the PC. Any connection using an USB C – USB C cable may not work properly.

3 - XLog expansions and connections

XLog supports the following AiM expansions:

- ACC3
- GPS09C and GPS09c Pro
- SmartyCam 3 series
- LCU1S
- Channel Expansion
- Shift Light Module
- GS Dash Display

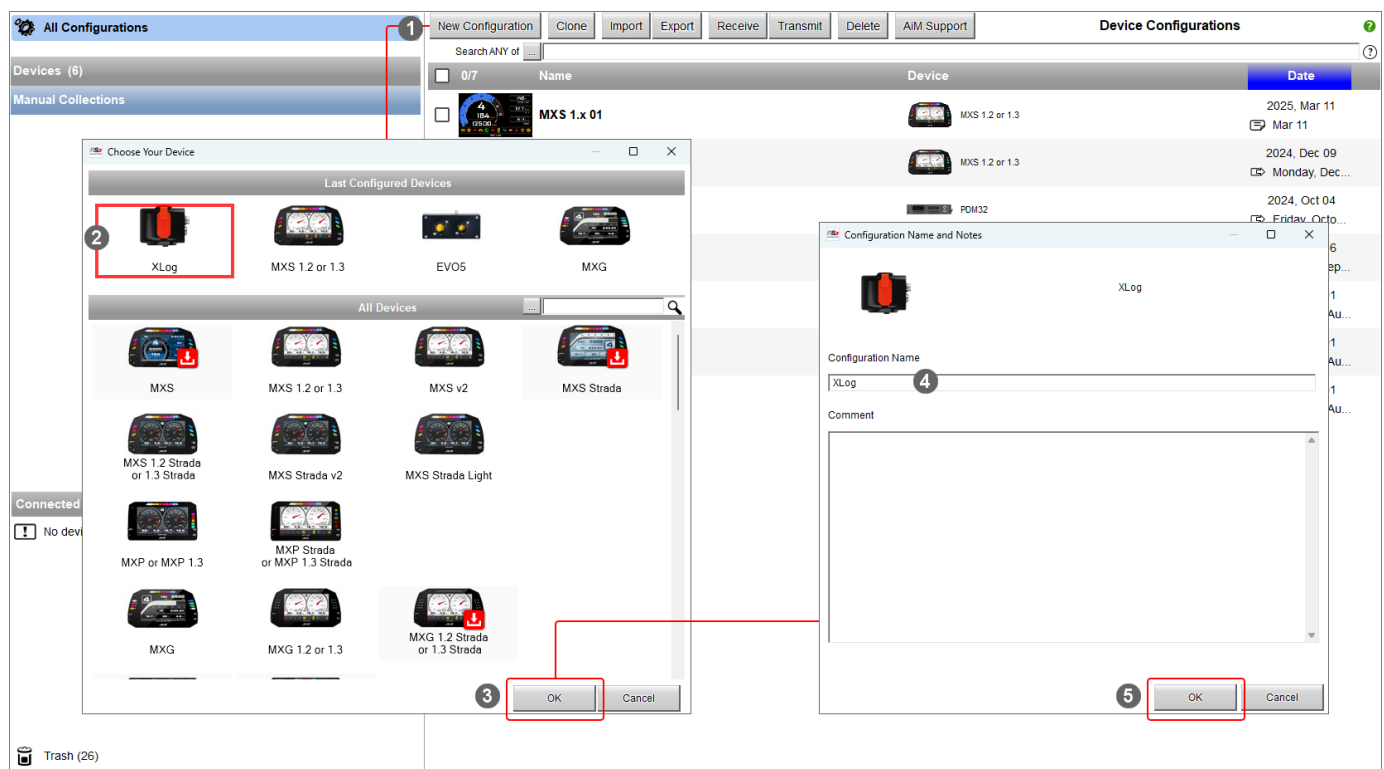
The image below shows an example of AiM CAN Network.



4 - Configuration with RaceStudio 3 software

To configure XLog follow these steps:

- run RaceStudio 3
- press “New Configuration” (1)
- select XLog (2)
- press “OK” (3)
- name the configuration if desired (default name is XLog (4))
- press “OK” (5).



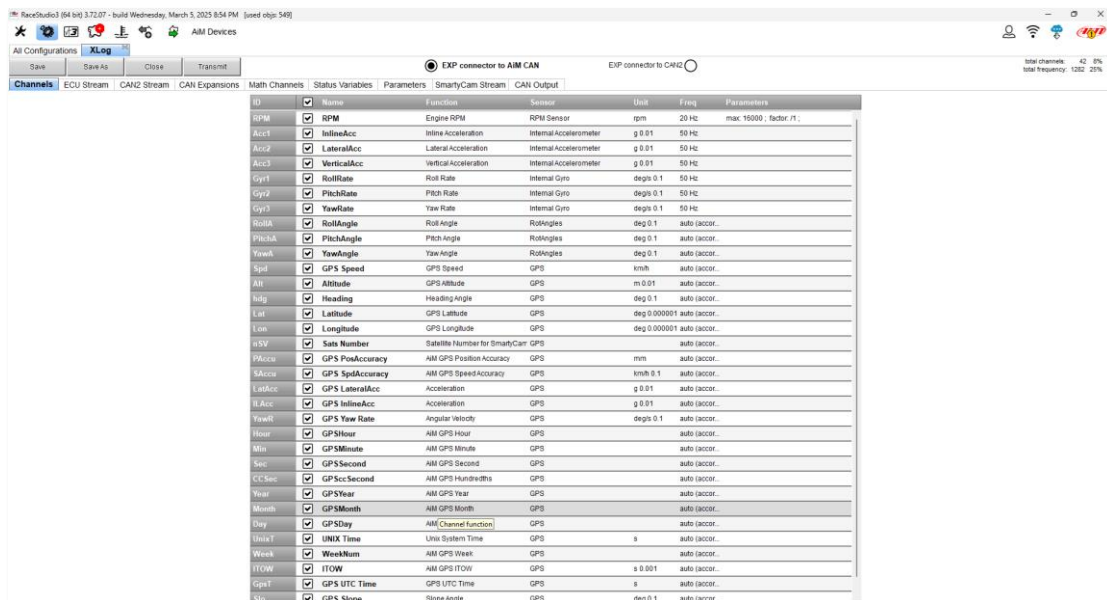
Once the configuration is opened, in dependence upon your installation, you need to configure the following features:

- Channels
- ECU Stream
- CAN2 Stream
- CAN Expansions
- Math Channels
- Status Variables
- Parameters
- SmartyCam Stream
- CAN Output

4.1 - Channels configuration

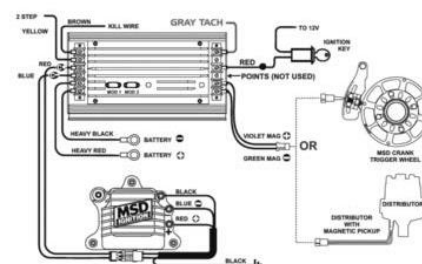
The XLog features some internal channels that you may decide to enable or disable:

- RPM – in case your vehicle has not an ECU, you may get RPM from a dedicated pin of the connector. The RPM signal can be: 0-5V square wave or low-level signal from the coil.
- IMU channels: The XLog features a 6 axes IMU used for calculating accelerations (linear, lateral and vertical) and angles (roll, pitch and yaw)
- GPS data: a wide number of information come from the GPS receiver: speed, coordinates, time of the day, among them).



4.2 – RPM via a 5-50V square wave or coil (150-400V)

If your vehicle does not have an ECU, your XLog may read RPM value from the low voltage of the coil (whose peak can be from 150 to 400 V) or from a possible square wave (the peak can be from 5 to 50 V). The image below shows an example of wiring of the ignition system.



The output labelled “GRAY TACH” gives a 5-50V output directly sampled by your XLog.

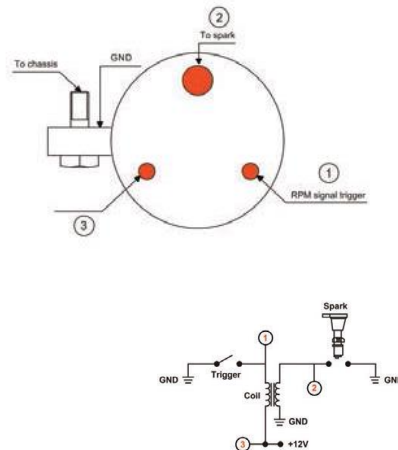
that can be

In case the vehicle ignition system has no output you need to connect your XLog to the low voltage of the coil as shown in the following images.

Point 1: low voltage of the coil

Point 2: connected to the spark plug

Point 3: connected to the +12V of the battery

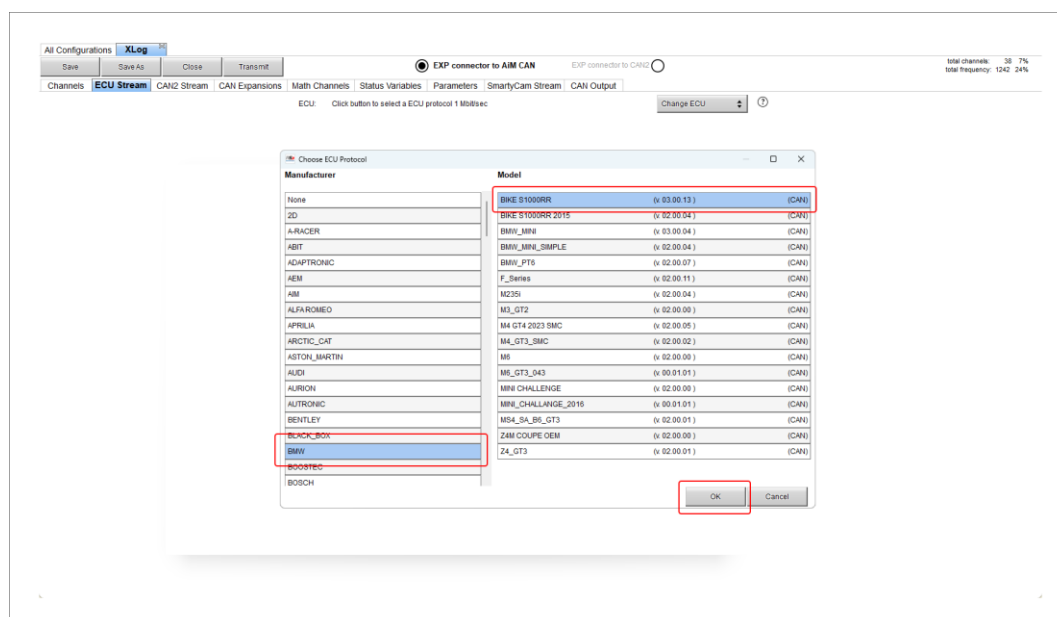


4.3 - ECU Stream configuration

The XLog can be connected to ECUs through different connections:

- CAN
- K-Line
- RS232

“ECU Stream” tab opens a panel to select the desired ECU protocol.



When you select a protocol, the corresponding sampled channels are shown.

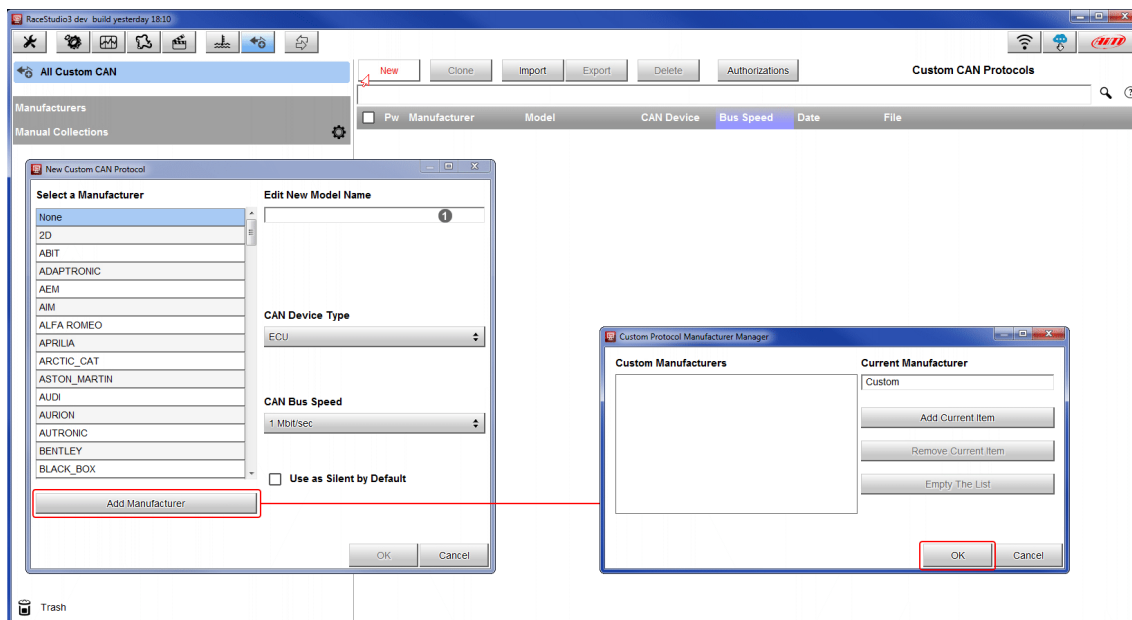
4.4 – ECU Driver builder

If your vehicle ECU is not included in Race Studio 3 software, you can use CAN Driver builder to create your own CAN protocol.

Please note: this Race Studio function is for expert users only.

You can add a new ECU Manufacturer and/or a new ECU model. To do so:

- Press “New” on the top central keyboard
- “New Custom CAN Protocol” panel shows up
- Press “Add Manufacturer” to add a new Manufacturer and “Custom Protocol Manufacturer Manager” panel shows up
- Fill in the Manufacturer name (“Custom” in the example below)
- press “OK”
- if you want to add a new ECU Model for an existing Manufacturer just select the manufacturer and fill in “Edit new model name” box (1).

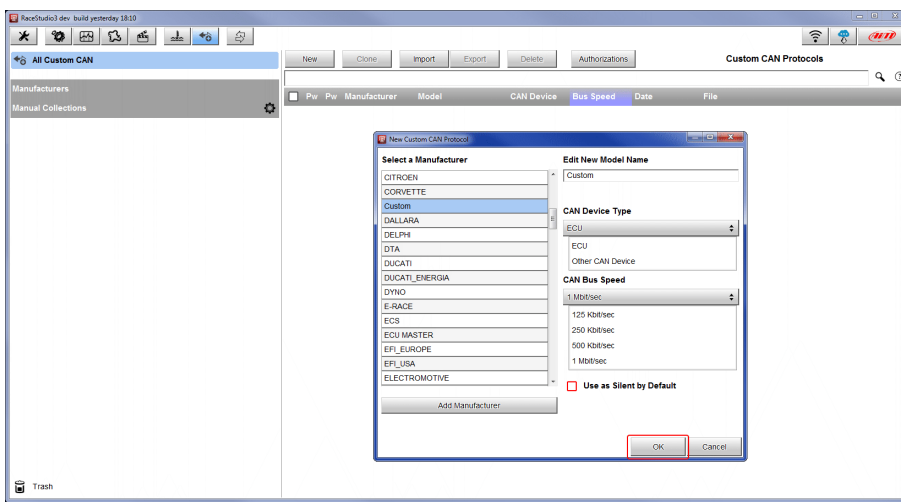


You come back to “New Custom CAN Protocol”:

- select the ECU Manufacturer you created
- Fill in the Model name in the panel top right box
- Select the CAN Device type; available options are:
 - ECU
 - other CAN Devices



- select the CAN Bus speed; available options are:
 - 125 Kbit/SEC
 - 250 Kbits/sec
 - 500 Kbit/sec
 - 1 Mbit/sec
- if your network features multiple devices we suggest to enable “Use a Silent by Default” checkbox
- PRESS “OK” and a new CAN Driver has been added



For further information about how to set the new CAN Driver refer to the CAN Driver builder user manual you can download from www.aim-sportline.com, documentation area software/firmware section.

All Configurations **XLog**

Save Save As Close Transmit

EXP connector to AIM CAN EXP connector to CAN2

total channels: 73 14% total frequency: 1582 31%

Channels **ECU Stream** CAN2 Stream CAN Expansions

Math Channels Status Variables Parameters SmartCam Stream CAN Output

ECU: **BMW - BIKE S1000RR (ver. 03.00.13) 500 Kbit/sec** Change ECU

☐ Enable the CAN Bus 120 Ohm Resistor

☐ Silent on CAN Bus

Enabled Channels (Max. 120) 35 / 35

ID	Name	Function	Unit	Freq
CC01	☒ RPM	Engine RPM	rpm	10 Hz
CC27	☒ Gear	Gear	gear	10 Hz
CC18	☒ HP4SpeedBike	Vehicle Speed	mph 0.1	10 Hz
CC21	☒ SpeedR	Vehicle Speed	mph 0.1	10 Hz
CC19	☒ HP4SpeedF2	Wheel Speed	mph 0.1	10 Hz
CC20	☒ HP4SpeedR2	Wheel Speed	mph 0.1	10 Hz
CC13	☒ SpeedF	Wheel Speed	mph 0.1	10 Hz
CC36	☒ LongAcc	Inline Acceleration	g 0.01	10 Hz
CC12	☒ HP4LongAcc	Inline Acceleration	g 0.01	10 Hz
CC08	☒ LatAcc	Lateral Acceleration	g 0.01	10 Hz
CC16	☒ VertAcc	Vertical Acceleration	g 0.01	10 Hz
CC09	☒ RollRate	Roll Rate	deg/s 0.1	10 Hz
CC11	☒ YawRate	Yaw Rate	deg/s 0.1	10 Hz
CC28	☒ WaterTemp	Water Temperature	F 0.1	10 Hz
CC29	☒ IntakeAirTemp	Intake Air Temperature	F 0.1	10 Hz
CC17	☒ HP4Banking	Angle	deg 0.1	10 Hz
CC02	☒ TPS	Percent Throttle Load	% 0.01	10 Hz
CC03	☒ PPS	Percent	% 0.01	10 Hz
CC06	☒ Neutral	Number	#	10 Hz
CC04	☒ Clutch	Number	#	10 Hz
CC05	☒ SideStandSw	Number	#	10 Hz
CC06	☒ BrakeF	Number	#	10 Hz
CC07	☒ BrakeR	Number	#	10 Hz
CC14	☒ ABSOff	Number	#	10 Hz
CC15	☒ HP4PotF	Number	#	10 Hz
CC16	☒ HP4PotR	Number	#	10 Hz



4.5 - Second CAN selection

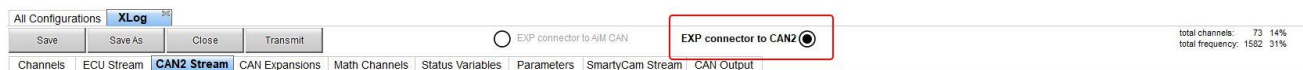
In the upper part of the screen, you may select one of the two available choices of the second CAN. It can be:

- AiM expansion CAN bus, if you like to use some of the AiM expansion devices.
- free configurable CAN for connecting your XLog to any other CAN device.

In dependence upon your choice, you will configure other parameters that you will find in CAN2 or CAN Expansion tabs.

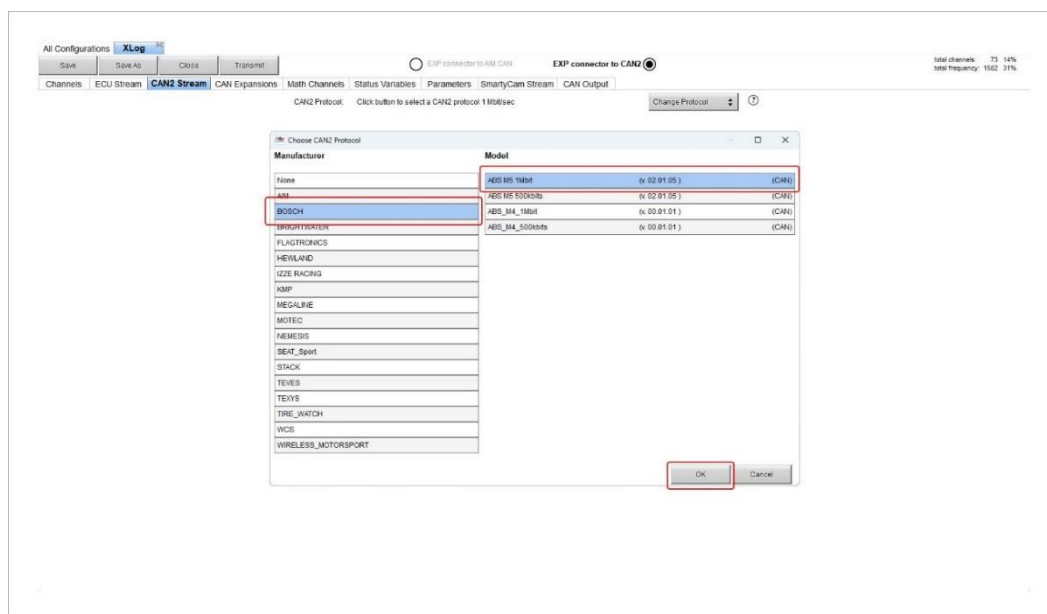
4.6 - CAN2 Stream

Please, set XLog CAN network as “EXP connector to CAN2” as shown below.



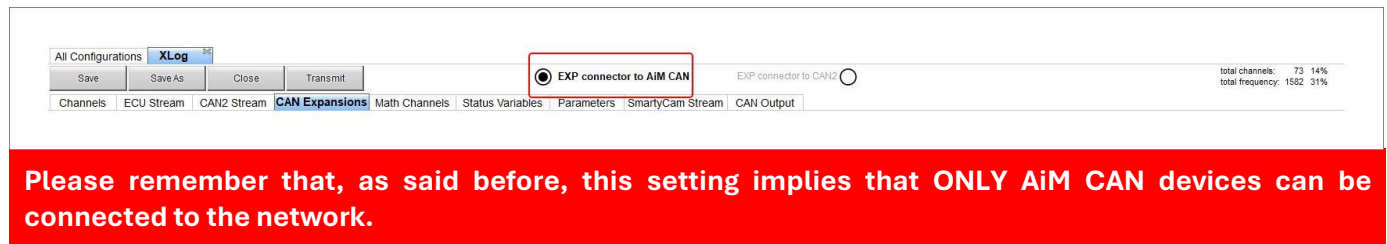
Please remember that, as said before, this setting implies that no AiM CAN expansion can be connected to the network.

Please press “Change Protocol” button: the related panel is prompted; select the device you are connecting to your vehicle.



4.7 - CAN Expansions configuration

Please, set XLog CAN network as “EXP connector to AiM CAN” as shown below.

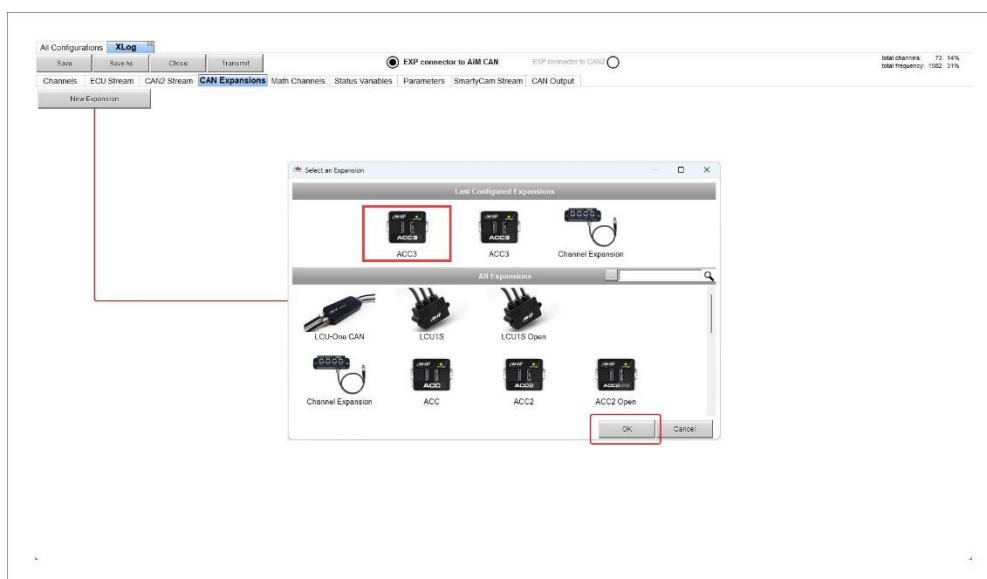


“AiM CAN Expansions” tab allows the user to add external devices such as:

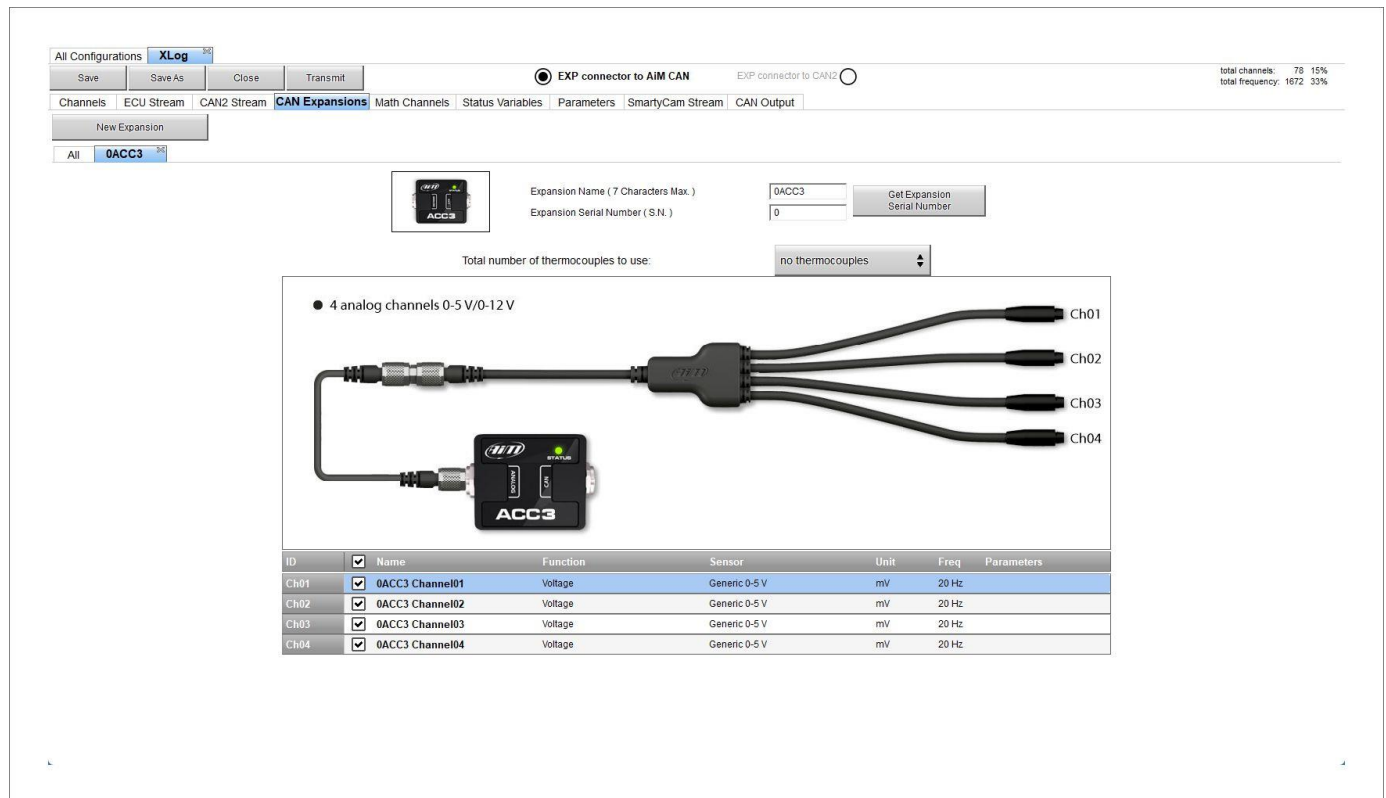
- ACC3: adds 4 analog or digital inputs
- GPS09C: adds an external GPS module in case the XLog needs to be installed in a position from which the satellites signals cannot be read well
- SmartyCam 3: useful to add a video synchronized with your data
- LCU1S: Lambda and AFR data
- Shift Light Module: it gives interesting information to the driver for changing gear
- GS Dash Display: in case you like to add a dash to your XLog

To add an AiM expansion:

- press “New Expansion” button; the related panel is prompted
- select the expansion module to be connected
- press “OK”



Here below an ACC3 has been selected. Each expansion needs to be configured through the dedicated panel. Please refer to the single user manuals for further information.



EXP connector to AiM CAN (selected) | EXP connector to CAN2

total channels: 78 15%
total frequency: 1672 33%

Channels | ECU Stream | CAN2 Stream | **CAN Expansions** | Math Channels | Status Variables | Parameters | SmartyCam Stream | CAN Output

New Expansion

All | **0ACC3**

Expansion Name (7 Characters Max.) : 0ACC3 | Get Expansion Serial Number

Expansion Serial Number (S.N.) : 0

Total number of thermocouples to use: no thermocouples

● 4 analog channels 0-5 V/0-12 V



ID	✓	Name	Function	Sensor	Unit	Freq	Parameters
Ch01	✓	0ACC3 Channel01	Voltage	Generic 0-5 V	mV	20 Hz	
Ch02	✓	0ACC3 Channel02	Voltage	Generic 0-5 V	mV	20 Hz	
Ch03	✓	0ACC3 Channel03	Voltage	Generic 0-5 V	mV	20 Hz	
Ch04	✓	0ACC3 Channel04	Voltage	Generic 0-5 V	mV	20 Hz	

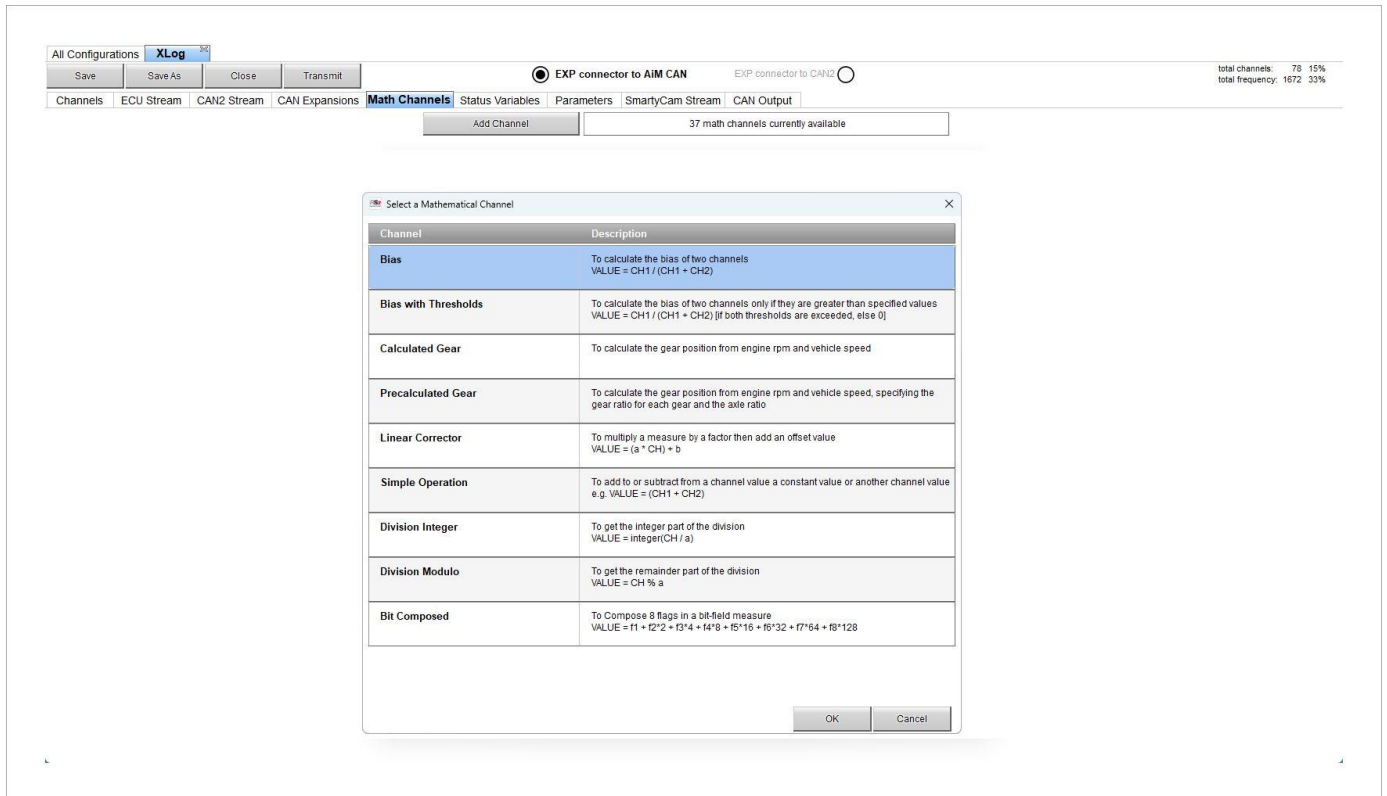
4.8 - Math channels configuration

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 thresholds 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.



4.9 - Status Variables configuration

As any AiM logger XLog allows to set different Status Variables. To do so press “Add Status Variable” button and **first of all fill** in Name and display label. Status variable values can also be recorded enabling the related checkbox.

Status variables can be **activated/deactivated** using:

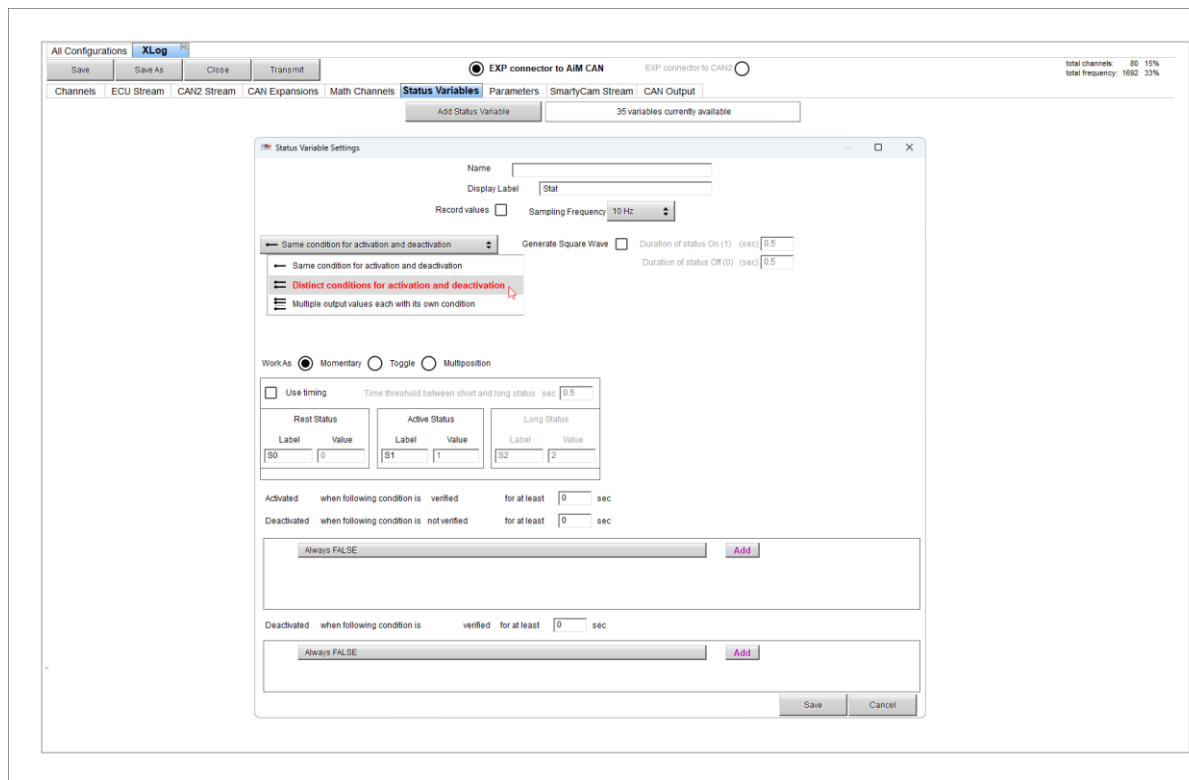
- the same conditions for both actions
- distinct conditions for activation and deactivation
- multiple output values each with its own condition

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: each status corresponds to an operating condition.

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.

Each condition can be configured



To set a custom condition:

- press “Add” button in “Status Variables” tab
- select the custom option (1)
- a selection panel is prompted: select the channel whose status determines the condition of the status variable you are setting (2)
- press “OK” (3)
- set the condition (4)

Condition

☐ Always TRUE ☐ Always FALSE

1 ☒ RPM

greater than

constant ☒ rpm 1000

TRUE after a time of 0 sec in which it is no longer verified

OK Cancel

greater than

less than

4 between values

equal to

different from

Hysteresis Up to Down

Hysteresis Down to Up

Select Channel

Source	Channel
ECU	RPM
Lap Channels	Gear
GPS	HP4SpeedBike
Accelerometer	SpeedR
Gyro	HP4SpeedF2
Internal	HP4SpeedR2
Math Channels	SpeedF
ACC3 Exp	LongAcc
	HP4LongAcc
	LatAcc
	VertAcc
	RollRate
	YawRate
	WaterTemp
	IntakeAirTemp

2

3 OK Cancel



Once the condition is set press “Save”.

EXP connector to AIM CAN

EXP connector to CAN2

total channels: 80 15%
total frequency: 1692 33%

Channels | ECU Stream | CAN2 Stream | CAN Expansions | Math Channels | **Status Variables** | Parameters | SmartCam Stream | CAN Output

Add Status Variable 35 variables currently available

Name: Water Temp
Display Label: Water
Record values: ☒ Sampling Frequency: 10 Hz

Distinct conditions for activation and deactivation: ☐ Generate Square Wave: ☐
Duration of status On (t1) (sec): 0.5
Duration of status Off (t2) (sec): 0.5

Work As: ☒ Momentary ☐ Toggle ☐ Multiposition

Use timing: ☐ Time threshold between short and long status: sec 0.5

Rest Status: Label S0 Value 0
Active Status: Label S1 Value 1
Long Status: Label S2 Value 2

Activated when following condition is verified for at least 5 sec
WaterTemp less than 140 F Add

Deactivated when following condition is verified for at least 0 sec
WaterTemp between values (194, 203) F Add

Save Cancel

Once the condition is set and saved, mousing over it is shown in “Status Variable” tab and can be edited clicking on it. The conditions are shown bottom of the panel as highlighted below.

EXP connector to AIM CAN

EXP connector to CAN2

total channels: 81 15%
total frequency: 1702 34%

Channels | ECU Stream | CAN2 Stream | CAN Expansions | Math Channels | **Status Variables** | Parameters | SmartCam Stream | CAN Output

Add Status Variable 34 variables currently available

Status Variable Freq Mon
☒ Water Temp 10 Hz ☒

Name: Water Temp
Display Label: Water
Record values: ☒ Sampling Frequency: 10 Hz

Distinct conditions for activation and deactivation: ☐ Generate Square Wave: ☐
Duration of status On (t1) (sec): 0.5
Duration of status Off (t2) (sec): 0.5

Work As: ☒ Momentary ☐ Toggle ☐ Multiposition

Use timing: ☐ Time threshold between short and long status: sec 0.5

Rest Status: Label S0 Value 0
Active Status: Label S1 Value 1
Long Status: Label S2 Value 2

It is activated (ON) when:
(WaterTemp less than 140 F)
is verified for at least 5 sec.

It is deactivated (OFF) when:
(WaterTemp between values (194, 203) F)
is verified

4.10 - Parameters configuration

Parameters tab allows to set

GPS Lap Detection (1): to set the seconds the lap time is hold on the GS Dash display.

available options are:

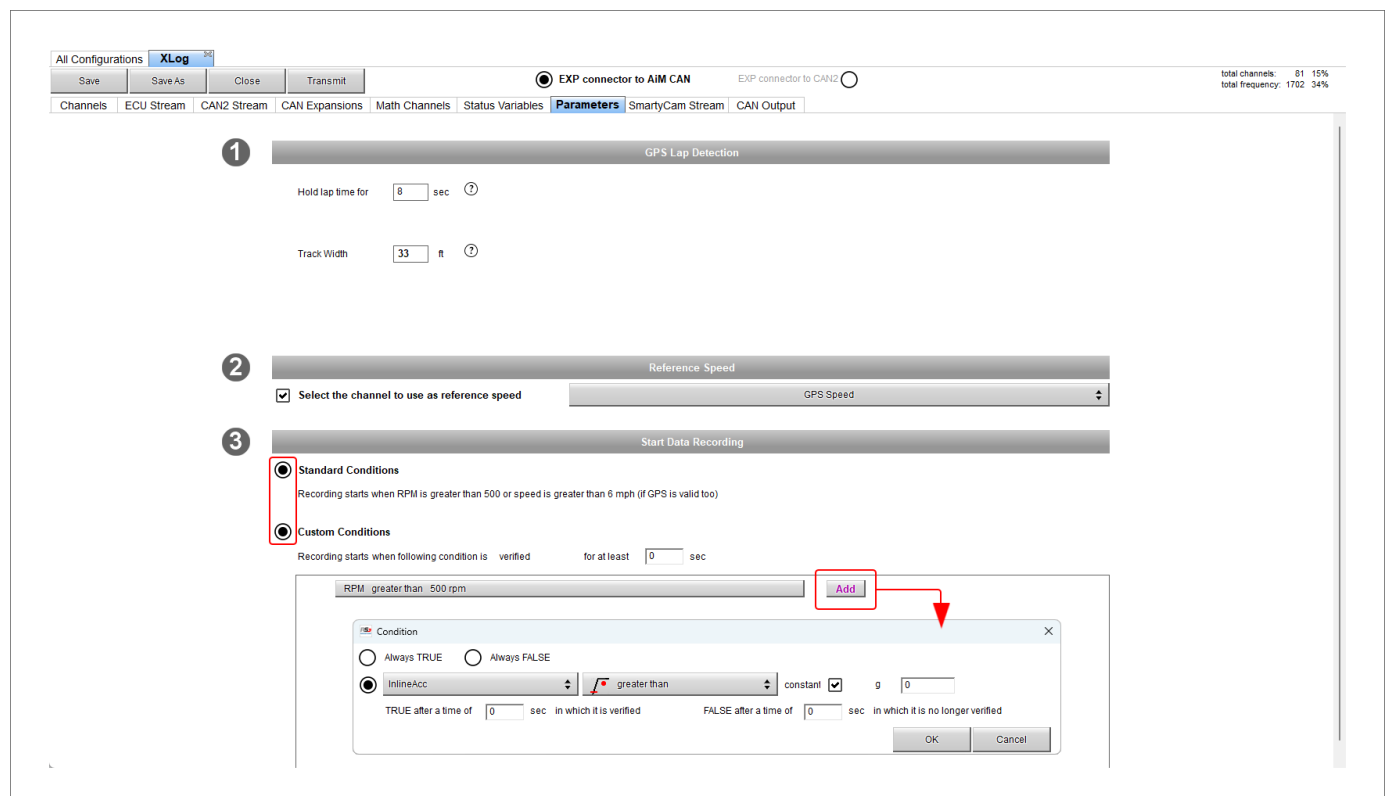
- **Hold lap time for:** this is the number of seconds the lap time is held static on the display before resuming a dynamic view such as predictive, current or running lap time
- **Track width:** this is the width that will be considered for any GPS point set (i.e. the width for start/finish line).

Reference Speed (2):

- sets the speed to use as reference one: default setting is “GPS Speed” but if an additional speed source is available, it is possible to change it enabling the left checkbox that enables the related button.

Start data recording conditions (3) allows to set the conditions that start recording. Available options are:

- **standard condition:** is RPM greater than 500 or speed is greater than 6 mph
- **custom condition:** allows to set the number of seconds the condition is verified and the condition pressing “Add” button.



The screenshot shows the XLog Parameters configuration window. The top bar includes 'All Configurations', 'XLog', and buttons for 'Save', 'Save As', 'Close', and 'Transmit'. Below this is a navigation bar with tabs: 'Channels', 'ECU Stream', 'CAN2 Stream', 'CAN Expansions', 'Math Channels', 'Status Variables', 'Parameters' (selected), 'SmartyCam Stream', and 'CAN Output'. The main content area is divided into three sections:

- 1 GPS Lap Detection:** Contains 'Hold lap time for' (8 sec) and 'Track Width' (33 ft).
- 2 Reference Speed:** Contains a checkbox 'Select the channel to use as reference speed' (checked) and a dropdown menu showing 'GPS Speed'.
- 3 Start Data Recording:** Contains two radio buttons: 'Standard Conditions' (selected) and 'Custom Conditions'. Below 'Standard Conditions' is the text 'Recording starts when RPM is greater than 500 or speed is greater than 6 mph (if GPS is valid too)'. Below 'Custom Conditions' is the text 'Recording starts when following condition is verified for at least 0 sec'. A red box highlights the 'Add' button next to the condition 'RPM greater than 500 rpm'.

A red arrow points from the 'Add' button to a 'Condition' dialog box. The dialog box has a title bar 'Condition' and a close button 'X'. It contains two radio buttons: 'Always TRUE' and 'Always FALSE'. Below them is a dropdown menu showing 'InlineAcc' and a dropdown menu showing 'greater than'. To the right of these is a checkbox 'constant' (checked) and a text input field '0'. Below these are two text input fields: 'TRUE after a time of 0 sec in which it is verified' and 'FALSE after a time of 0 sec in which it is no longer verified'. At the bottom are 'OK' and 'Cancel' buttons.

4.11 - WiFi

XLog Wi-Fi configuration can be made only using Race Studio 3 software. Two possible Wi-Fi modes are available:

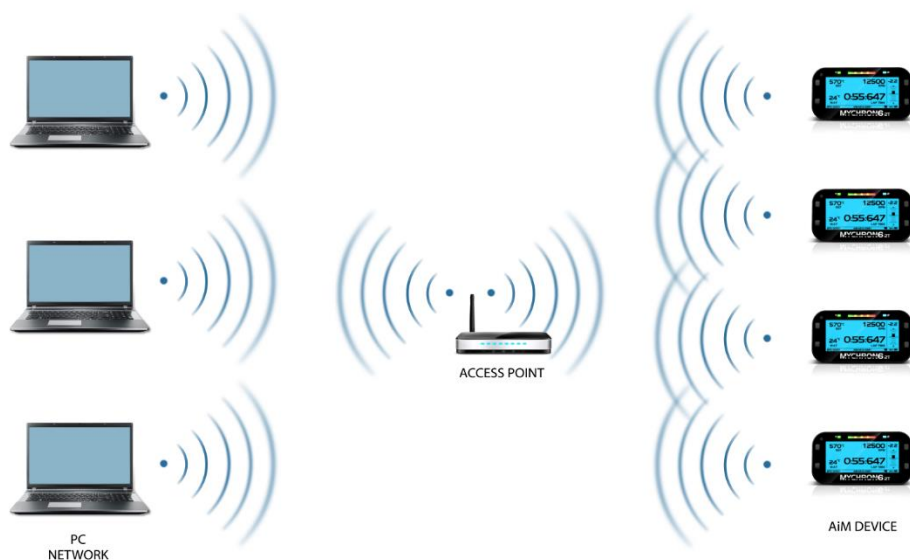
1 – As an Access Point (AP – default setting)

This is the ideal configuration if you have one only device and one only computer. In this situation, your XLog creates a Wi-Fi network and works as an Access Point you can connect your PC too.



2 – Existing network (to connect to an existing Wi-Fi network – WLAN)

This mode is more complex and implies an external access point (AP) but it is also more flexible and powerful because allows to communicate with more than one device and with more than one computer in the same network. XLog and the PC must connect to an existing Wi-Fi network made by a device that works as an external Access Point.



When working in WLAN mode XLog has two available security levels:

- network authentication: network password
- device authentication: XLog password

Both levels allow to use different strategies. A PC in WLAN, for example, can see several AiM devices but can communicate only with those he knows the password of.

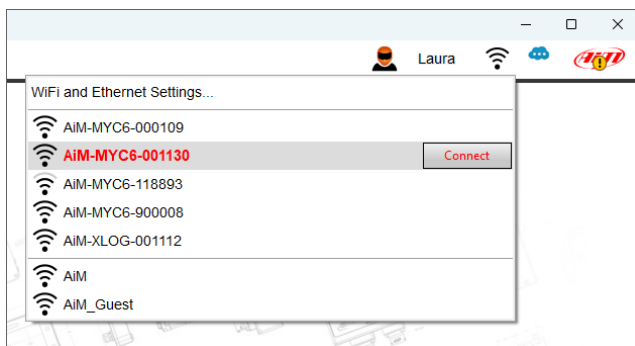
In case the password is forgotten it is possible to reset Wi-Fi configuration from XLog menu as explained at the beginning of this chapter (Wi-Fi Reset CFG).

4.11.1 - Configuring XLog as an Access Point (AP)

This is XLog default configuration and is the easiest and most direct connection mode, ideal if you want to communicate with one XLog using one PC. It is free and so completely accessible by anyone. AiM suggests to set an access password.

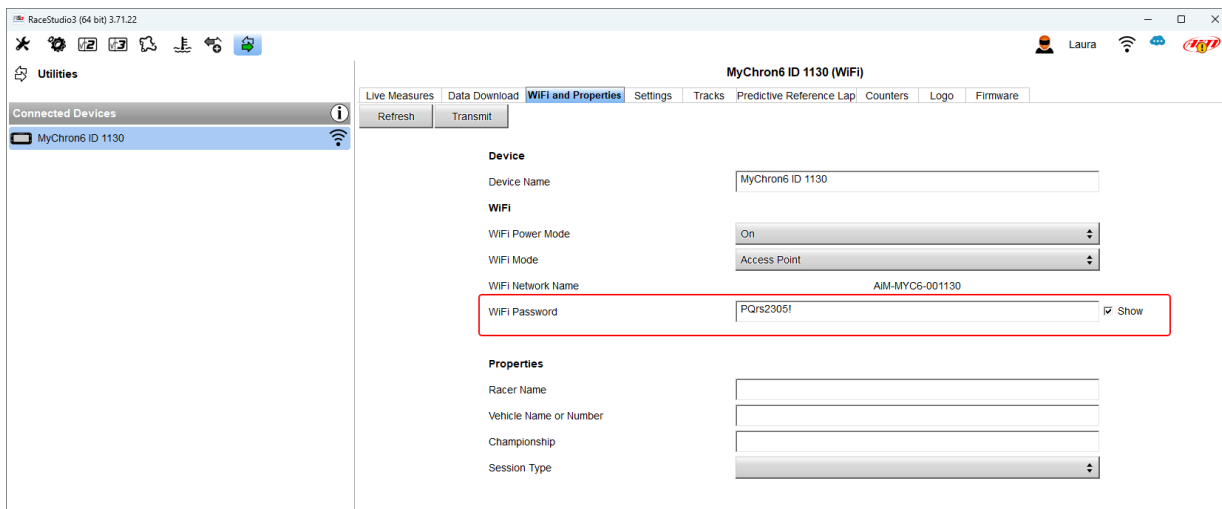
To establish a Wi-Fi connection:

- ensure that the Wi-Fi is enabled
- read your XLog serial number (001130 in the image below).
- run Race Studio 3
- click Wi-Fi icon and select your device
- in a few seconds, the connection is established

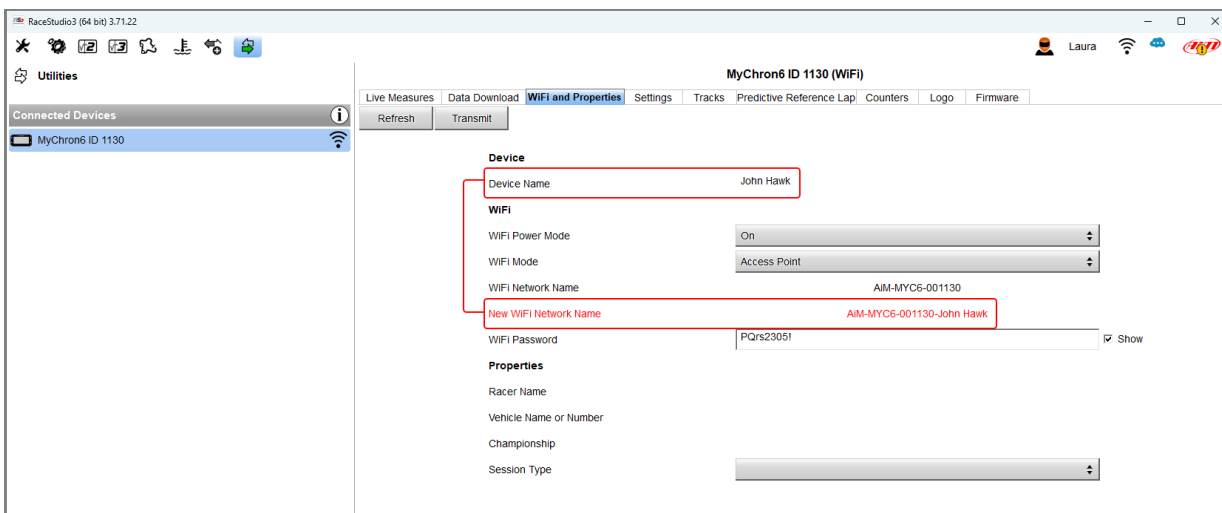


To set other parameters create a unique password to protect the device/ network. With a password the communication is safe and encrypted using WPA2-PSK standard.

Characters allowed in the password are all letters, also capital, all digits and these characters: ‘+ - _ () [] {} \$ % ! ? ^ # @ * \ \ ” = ~ . : ; / % ”. “Space” type can be used if it is not the first one because this could cause incomprehension in some Windows™ versions.



This AP or SSID name is unique for your device. An example of name is: **” AiM-XLog-001130”**. To make your device more recognizable you can add a name to the SSID. The limit is of eight characters. Allowed characters are all letters, capital too, all digits and these characters: ‘+ - _ () [] {} !’. “Space” type can be used if is not the first for not to cause incomprehension in some Windows™ versions. Adding, for example the driver’s name, John Hawk, the network name (SSID) becomes: **”AiM-001130-John Hawk”**. Once all parameters set click “Transmit”. XLog reboots and is configured with the new parameters. If XLog is protected by a password, as recommended, Race Studio3 will ask that password to authenticate.



Please Note: the same Wi-Fi connection can be created with the operative system tool. Once the device has been authenticated in the Wi-Fi network you can communicate with it using Race Studio 3.

4.11.2 - Adding XLog to an existing network

This situation is ideal for a team with multiple drivers and staff members and is desired to communicate with one or more AiM devices using the same PC network. Each XLog can have its password that adds another security and privacy level to the network.

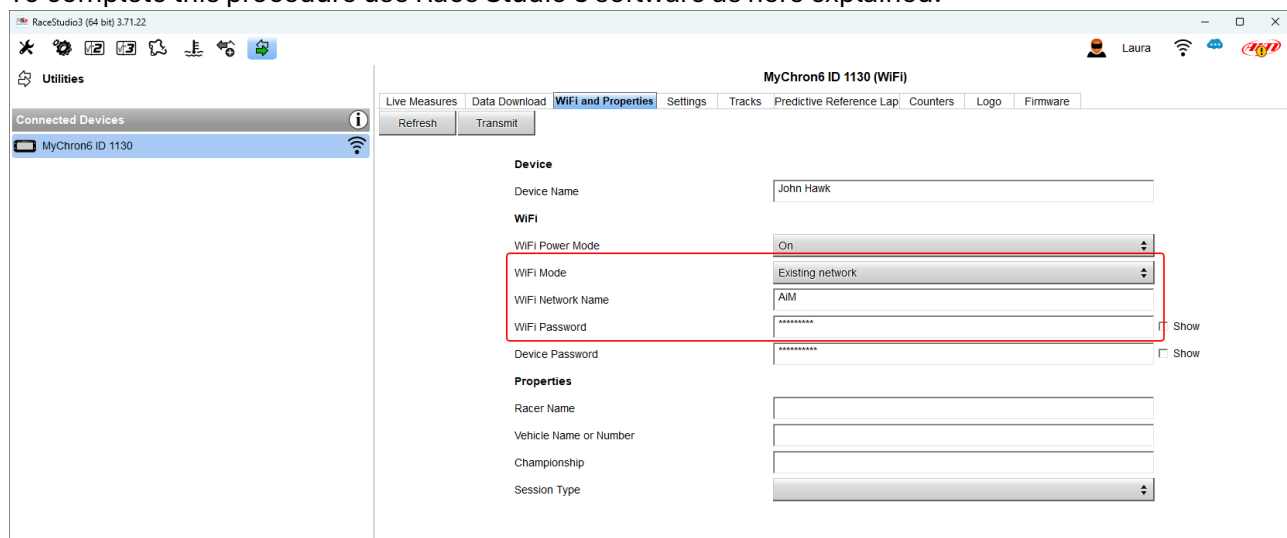
Race Studio 3 will show all XLog connected to the same network under “Connected devices” label, bottom left of the software page: click your device.

Enter “Wi-Fi and properties” tab and set it on “Existing Network”; fill in network name, network password and device password.

Transmit the network settings to your device clicking “Transmit”: your device reboots and joins that network.

Please note: the only admitted password are those following WPA2-PSK standard.

To complete this procedure use Race Studio 3 software as here explained.



Here above you see a device “XLog ID 1130” that switched from AP to Existing Network. Network name is “AiM” and does not work with free access because is protected by a password.

To obtain connectivity on the device the PC has to be authenticated to the network. When the PC is authenticated to the network called “AiM” it can see all devices configured to access the same network.

4.11.3 - Wi-Fi network settings

In this chapter, you find a short description of how to configure a WLAN including AiM devices and a PC. Here below is an example of configuration.



ROUTER SETTINGS
Use this section to configure the internal network settings of your router. The IP Address that is configured here is the IP Address that you use to access the Web-based management interface. If you change the IP Address here, you may need to adjust your PC's network settings to access the network again.
Router IP Address : 192.168.0.1
Subnet Mask : 255.255.255.0
Device Name : Network_1
Local Domain Name : (optional)
Enable DNS Relay : ☒

DHCP SERVER SETTINGS
Use this section to configure the built-in DHCP Server to assign IP addresses to the computers on your network.
Enable DHCP Server : ☒
DHCP IP Address Range : 192.168.0.2 to 192.168.0.6
DHCP Lease Time : 10080 (minutes)
Always Broadcast : ☒ (compatibility for some DHCP Clients)
NetBIOS announcement : ☐
Learn NetBIOS from WAN : ☐
NetBIOS Scope : (optional)
NetBIOS node type : ☒ Broadcast only (use when no WINS servers configured)
☐ Point-to-Point (no broadcast)
☐ Mixed-mode (Broadcast then Point-to-Point)
☐ Hybrid (Point-to-Point then Broadcast)
Primary WINS IP Address :
Secondary WINS IP Address :

For better network performances, we suggest the use of a network device equipped with a DHCP server and using 3x3 MIMO technology like, for example a Linksys AS3200. To maximize the bandwidth, you should not allow the Internet on this WLAN; this means the DHCP server should be configured without any DNS address nor gateway by default.

The parameters for the device network configuration in this example are:

- **Wireless network name: network_1**
It means that the WLAN network name is “network_1.” A PC has to be authenticated in this network to interact with any AiM device of this network.
- **Gateway address: 192.168.0.1**
primary DNS server: 0.0.0.0
secondary DNS server: 0.0.0.0
(These settings prevent Internet connectivity on this WLAN.)
- **Subnet mask: 255.255.255.248**
Enable DHCP server: yes
DHCP IP address range: 192.168.0.2 to 192.168.0.6
These settings enable a DHCP server running on this WLAN and provide an IP address in a 2-6 range. This means that this network allows 5 network hosts.
The number of devices on a WLAN network depends on the subnet mask. Here below you see typical examples of network masks and IP addresses range.
The configuration in bold is the one we suggest (if a greater number of devices is not needed), being the one that makes it easier and quicker for Race Studio 3 the identification of the devices in the network.

Subnet mask:	IP address range:	Number of devices:
255.255.255.0	192.168.0.1 – 254	254
255.255.255.128	192.168.0.1 – 126	126
255.255.255.192	192.168.0.1 – 62	62
255.255.255.224	192.168.0.1 – 30	30
255.255.255.240	192.168.0.1 – 14	14
255.255.255.248	192.168.0.1 – 6	6

4.11.4 - The Internet connectivity

For an optimal speed of your AiM device(s) we recommend not to allow the Internet on the same network and to set the WLAN in the same way. You can of course allow the Internet access on your network but this would degrade the communication. This slightly slower speed can be suitable for your needs but you can also have a second Wi-Fi connection using an additional hardware (NIC). This configuration would provide an optimal speed of the data network of your AiM device(s) and at the same time would provide an internet connectivity with the second NIC.

4.11.5 - Connection issues

It can occur that XLog is correctly connected to Race Studio 3 via Wi-Fi but the user interface does not show it. This may be because Wi-Fi port setting is set with a static IP. To switch it to dynamic (DHCP):

- open “Network and sharing centre” in the Windows™ research engine
- right click on the Wi-Fi connection and a panel shows up
- select “Properties” option
- double click on “Internet Protocol version 4 (TCP/IPv4)”
- verify that option “Obtain an IP address” is active

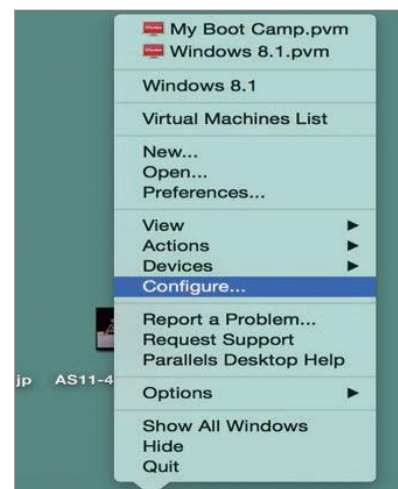
4.11.6 – Working on Mac™ with virtualized Windows™

Race Studio 3 only works on Windows™ operative systems; Mac users can use a virtualized Windows™ machine.

The main problem is that the host OS (Mac) must share its Wi-Fi interface with the virtualized operative system (Windows) as Ethernet interface and not as Wi-Fi interface.

Configuring Parallels™

Select “Configure...” in Parallels “Menu”.

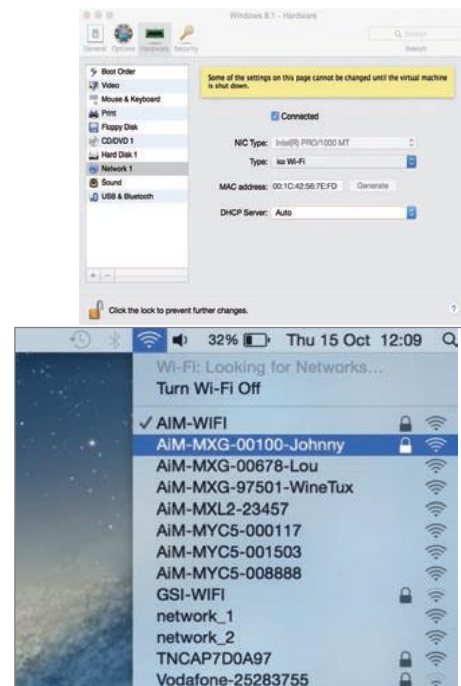




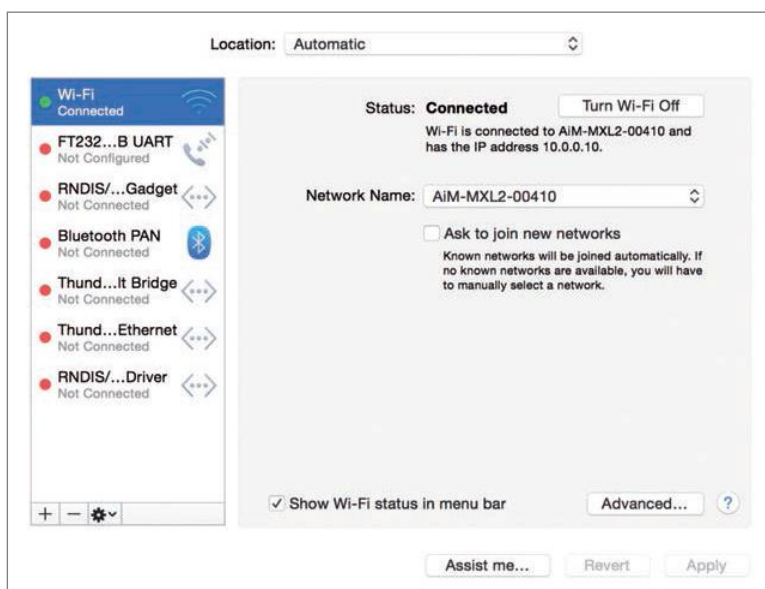
User Guide

Press "Hardware" – top on the page that shows up – and select "Network" in the drop-down menu on the left. Right on the configuration panel set "Type" field on "Wi-Fi". Then select the device you want to communicate with.

To ensure that the communication works select "Open Network preferences..." menu.

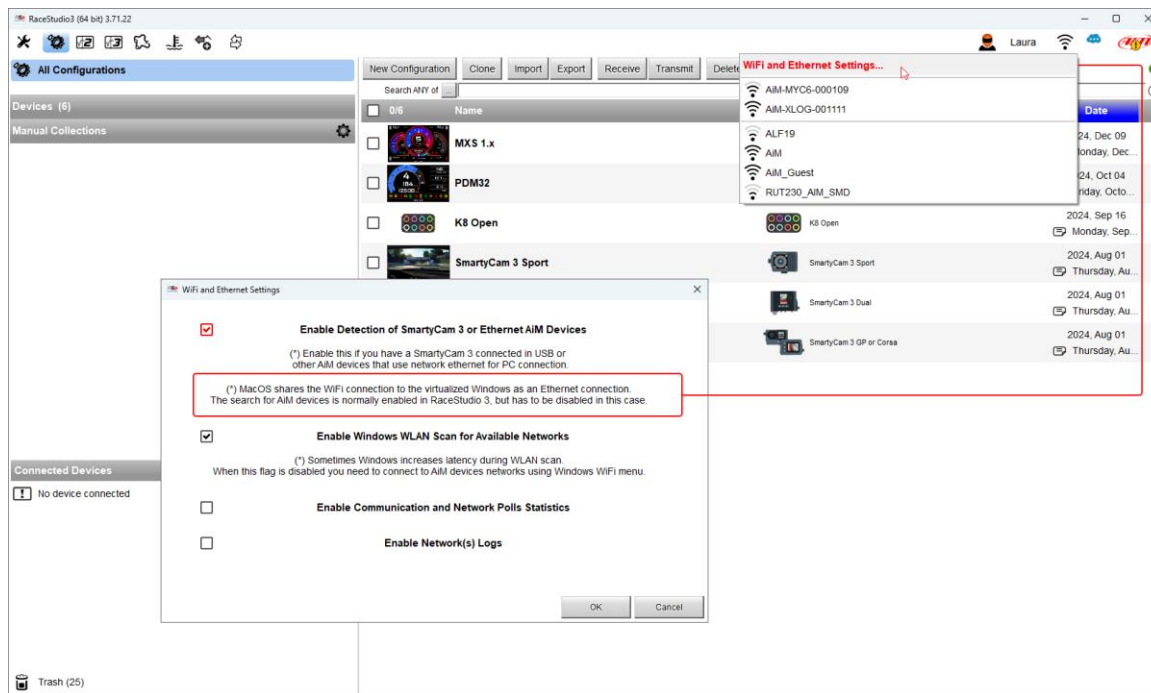


Verify that the status in the window that shows up is "Connected" and that the IP address associated is, for example, 10.0.0.10 (could be 10.0.0.11, 10.0.0.12, or generically 10.0.0.x).



To enable Race Studio 3 correctly working on a Mac with virtualized Windows™:

- press Wi-Fi icon 
- select "Wi-Fi and Ethernet Settings" option
- enable the top checkbox



4.12 – SmartyCam Stream

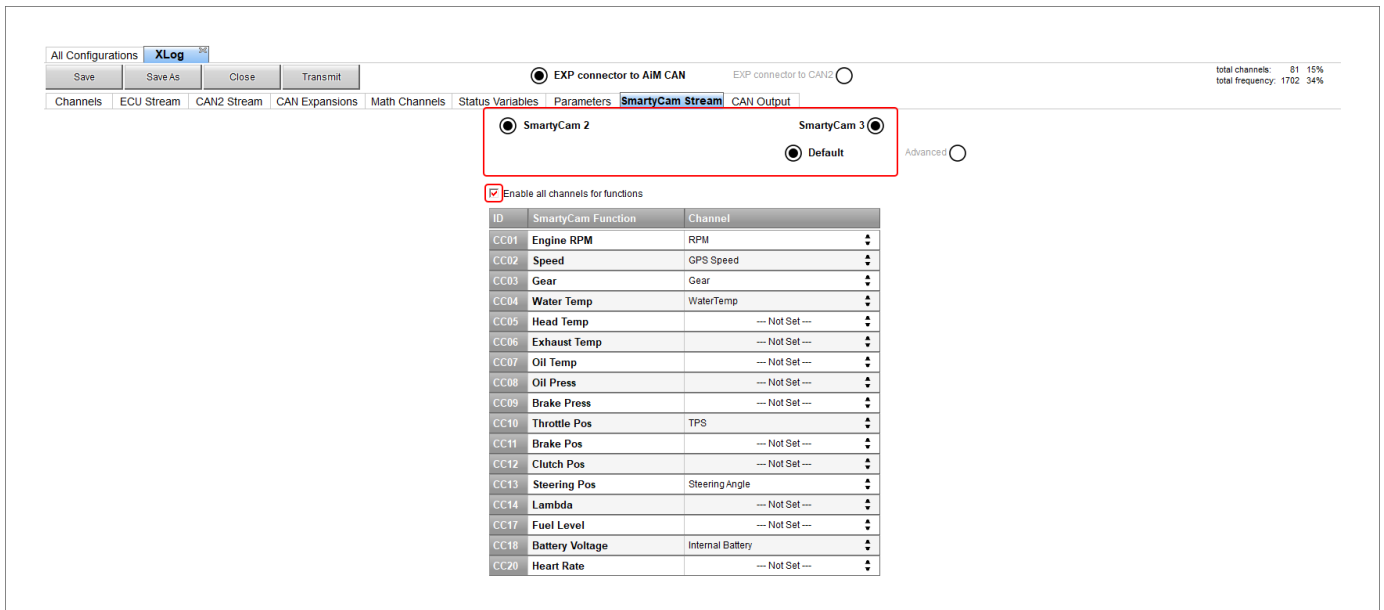
XLog can be connected to both AiM SmartyCam 2 and SmartyCam 3 through the CAN Bus to show data on SmartyCam video. The logger transmits data to the Camera in two slightly different ways according to the camera model and to the fixed setting. Available options are:

- SmartyCam 2 and SmartyCam 3 Default
- SmartyCam 3 Advanced

For XLog to transmit each channel to the connected SmartyCam 2/SmartyCam 3:

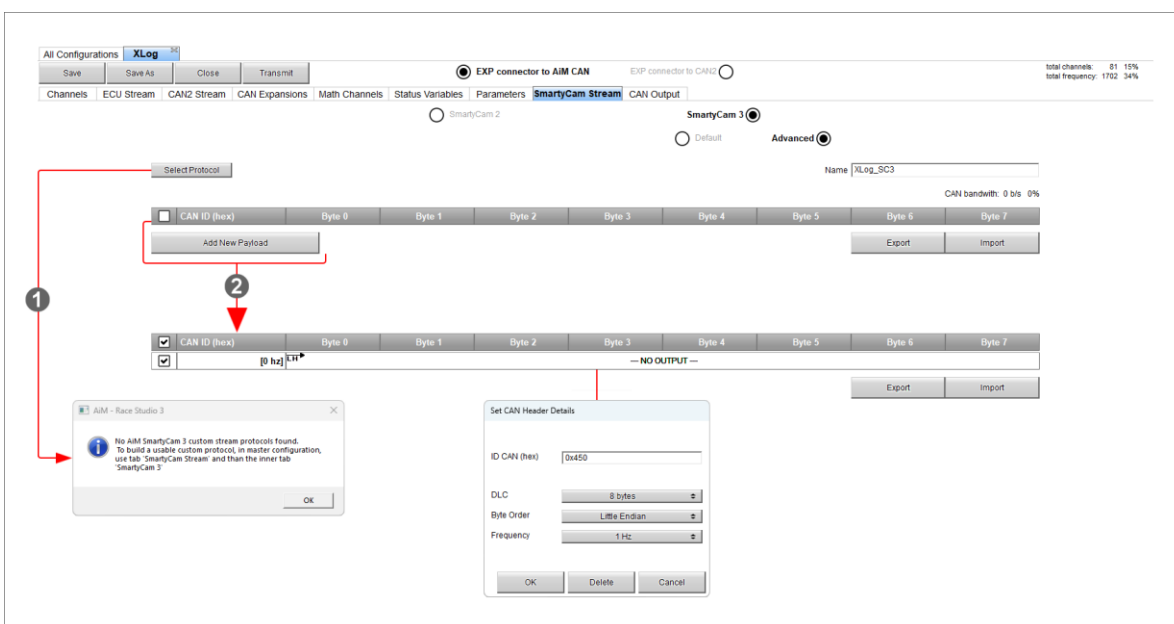
- enter “SmartyCam stream” tab
- it shows all channels and/or sensors that fits the selected function. **Please note:** if the desired channel or sensor is not in the list enable “Enable all channels for functions” checkbox and all channels/sensors will be shown.

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



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:

- select SmartyCam stream tab in XLog configuration
- select “SmartyCam 3 -> Advanced” option in SmartyCam Stream tab
- configure XLog in order to transmit a different SmartyCam stream; in case no SmartyCam stream protocol has been created for XLog a message is prompted (1)
- press “Add new Payload” (2)
- create your desired stream defining the required IDs fields and save it pressing “OK”
- name the protocol



4.13 - 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.

4.14 - Transmitting the configuration to XLog

Once all the tabs set XLog configuration needs to be saved and transmitted to XLog pressing “Save” and “Transmit” buttons on the top left keyboard of configuration Tab. XLog can be connected to the PC via Wi-Fi or through the USB A – USB C cable included in the kit.

5 - Connection to the PC

You can connect XLog to a PC via Wi-Fi or via USB through the USB cable you find in the kit. To connect the XLog via Wi-Fi:

- check that XLog Wi-Fi is set on “AUTO”
- Click devices icon top left of the software bar
- Click on the device on the left of the software view. The software enters Live Measures tab as shown here below.

Please note: this view can change according to the features available when your XLog has been produced.

Once the connection is established you have these options

- **Live Measures:** to check all XLog channels;
- **Data Download:** to download data, see the related chapter.
- **WiFi and Properties:** to manage the Wi-Fi configuration – see the related chapter;
- **Settings to:**
 - o set date and time format
 - o manage Time/Date synchronization
- **Tracks:** to manage the tracks stored in the device memory
- **Predictive Reference Lap:** to manage the laps stored that can be selected as reference lap
- **Counters:** to manage the device odometers; here you can reset the four user odometers as well as name them.
- **Firmware:** to check or update your XLog firmware version.

6 - GPS and Track Management

The XLog features a very powerful 25 Hz GPS receiver that can be used for receiving many interesting data:

- Speed
- A vehicle acceleration
- Coordinates
- Time of the data



The coordinates can be used for calculating the Lap Times and Split times: in order to execute such feature, the XLog need to have the information about the track in which you are driving. In the AiM Race Studio3 software, you may find several thousand of track information for the most important circuits of the world. For a deep explanation about the Track database, please refer to

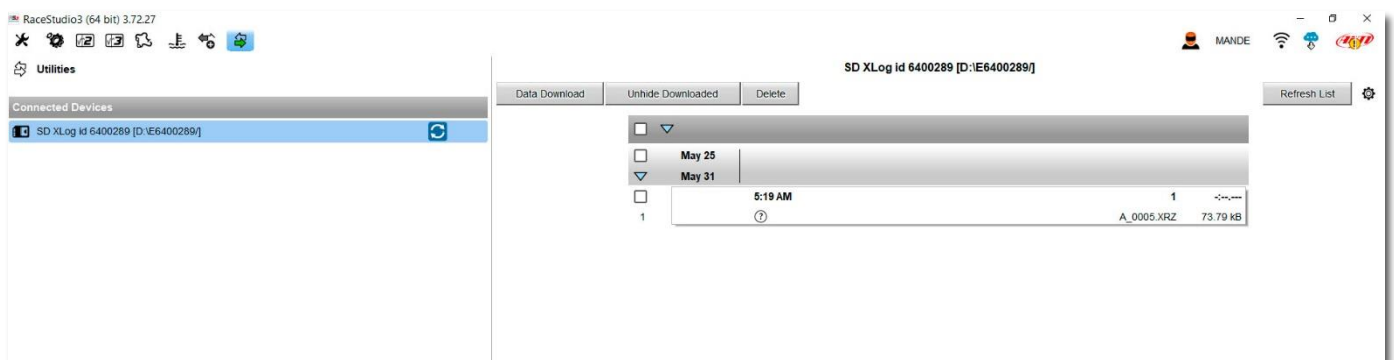
https://aim-sportline.com/download/software/doc/TrackManager_102_eng.pdf

7 - Data download

The data are recorded in two different memories:

- an internal 4 GBytes memory
- an USB-C memory card.

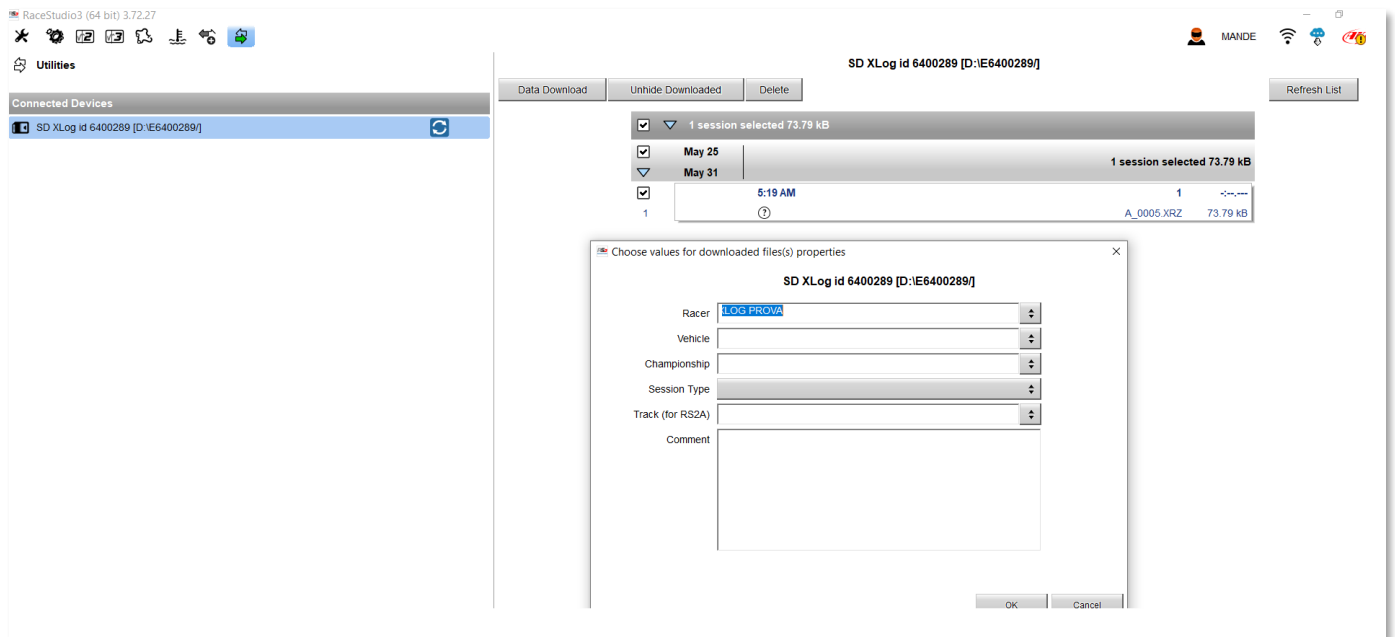
If you have the USB-C memory card installed, simply remove it from your XLog, install it into your PC and download the data.



In case you prefer to use the internal memory, you have to connect the XLog to the PC, then push “Download” tab to download the sampled data.



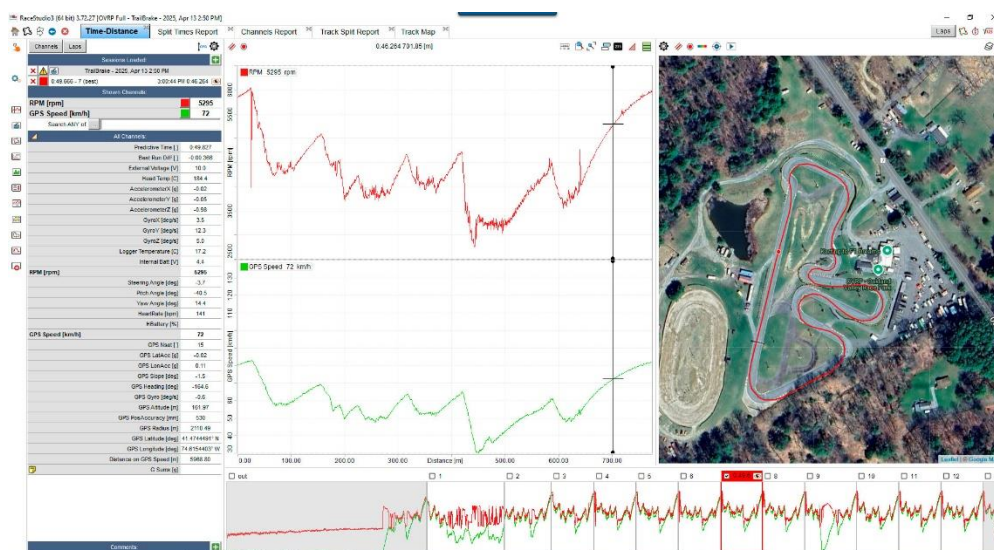
User Guide



This page shows all information about the files stored in the system: number of laps, best lap, date/time and file dimensions. Select one or more files and press “Download” to download and analyse them.

8 - Analysis

When data have been downloaded press Analysis icon and Race Studio Analysis software will open showing this page. Select your file double clicking on it and start analysing it. A lot of pages, graphs and images will help you analysing your data.



9 - Recharge and powering

XLog can be charged in two ways:

- through the external power connected to the 3 and 8 pins of the 8 pins Binder connector
- Through the A-Type C-Type USB cable

Needed charging time for a completely discharged device is about 4h and the required power delivery to enable fast charge is of almost 10 Watt. USB connection through a PC could increase charging time if the power delivered is not enough (i.e. using a limited USB port on old PC).

10 - Front LED working mode

The front LED highlighted below working mode is:

- blinking at 5hz not connected to the PC
- blinking at 2Hz if connected to the PC or if the USB drive is plugged in
- blinking at 20Hz if recording



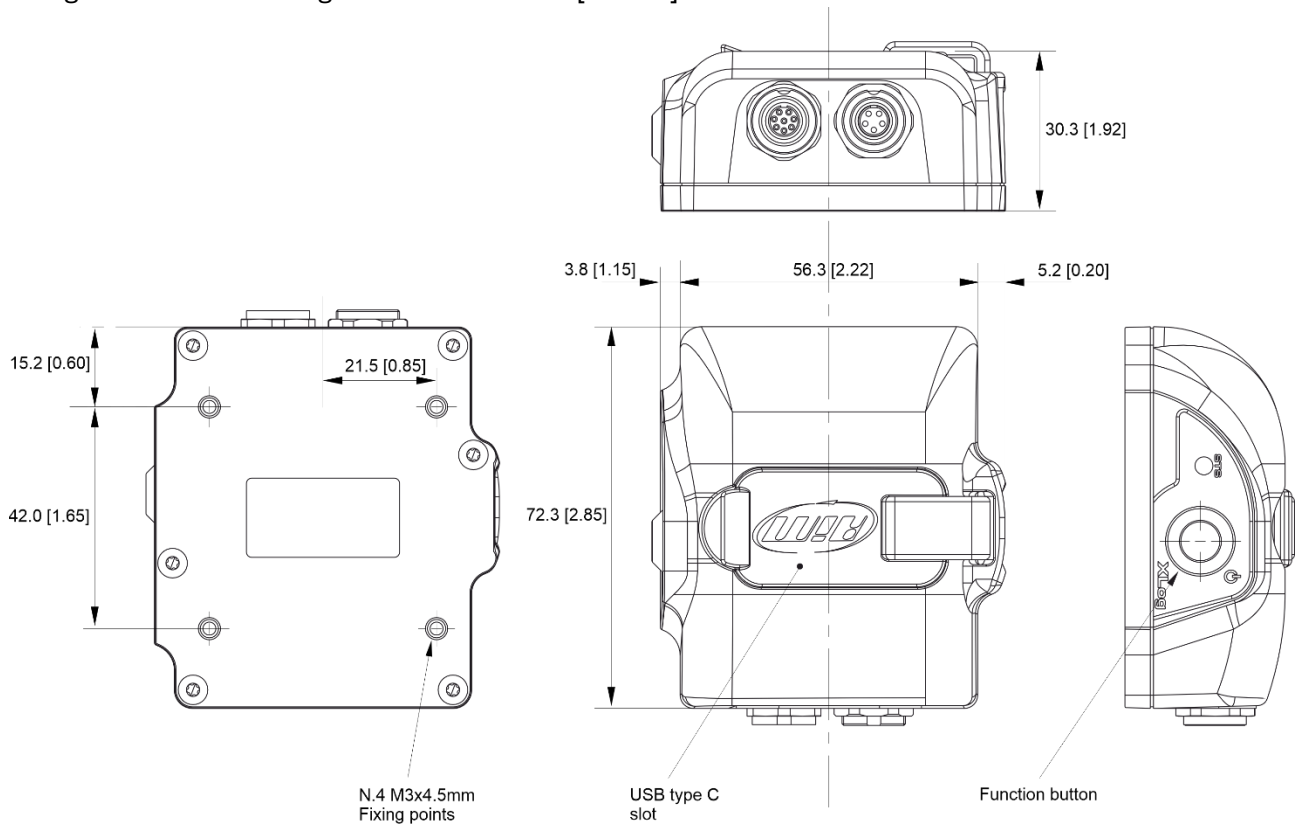
11 - XLog reset procedure

To reset the system, press the on/off button highlighted below.

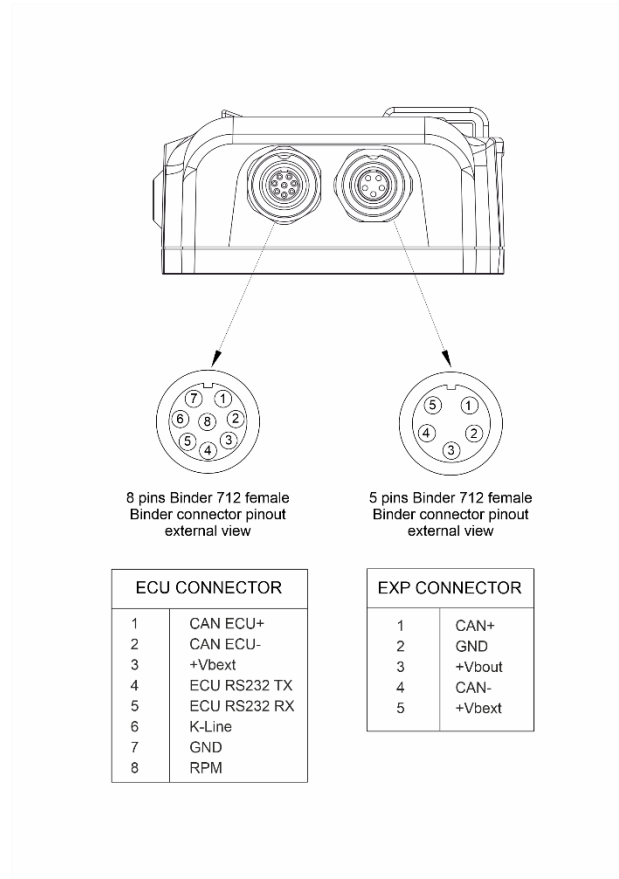


12 - Dimensions, pinout and technical characteristics

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



The image below shows XLog pinout.



Technical characteristics:

- Integrated track database Yes
- Inertial platform: Internal 100 Hz 3 axis $\pm 5G$ accelerometer + 3 axis gyro
- USB connection: Yes
- Wi-Fi connection: Yes
- Bluetooth connection: Yes
- GPS 25Hz
- ECU connection: CAN, RS232 or K-Line
- 2nd CAN configurable as 2nd CAN or AiM expansion CAN
- RPM input: 1
- Pushbutton: 1
- Status LED 1
- External power 9÷15 V
- Connectors 1 socket (5 pins Binder 712) + 1 socket (8 pins Binder 712)
- Memory 4GB + removable USB-C memory card
- Battery type Rechargeable Lithium
- Dimensions 72.3x65.3x3.03 mm
- Weight 150g approximately
- Waterproof: IP65