User Manual

ACC2 Open

Release 1.01







User Guide

1 – Introduction

ACC2 Open (**Analog CAN Converter Open**) is an external expansion module that samples up to 4 analogic signals, converts them into digital values depending upon the chosen unit of measure and transmits them via CAN through freely configurable messages, at a maximum frequency of 200 Hz. The analog signals that ACC2 Open manages are:

- 0-5V
- Thermoresistences
- 0-12V
- K Type Thermocouples

2 – Wirings

2.1 – Sensors Connections

ACC2 Open can manage many different sensors, from Thermocouples to sensors whose output is 0-12V. Please, note that the thermocouples require dedicated compensated cables, so different kits and different harnesses and cables are available. Here down some examples of the available harnesses.





2.1 – USB, Power and CAN Connections

The second connector of the ACC2 Open is intended for:

- power:
 - \circ 9-12V for sensors which output is less than 12V
 - 12-15V for sensors which power is 12V
- USB connection: it is required for transmitting the configuration and for eventually look at the data online.
- CAN Connection

The available harnesses are the following:

Used for connecting the ACC2 Open to a device through CAN and get the power.	AiM CAN Cable - 5MM712 Part Number V02551670 (50cm) Part Number V02551700 (200cm) Part Number V02551700 (200cm) Part Number V02551700 (200cm) Part Number V02551700 (400cm) Part Number V02551700 (400cm) Part Number V02551700 (400cm) Part Number V02551700 (400cm) Blue CAN Low
Used for connecting the ACC2 Open to a device through CAN and get the power.	AiM Open CAN Cable - 7M5M712 Part number V02551830 (50cm) Part number V02551860 (200cm) Part number V02551860 (400cm) Part number V02551860 (400cm) Part number V02551860 (400cm) Contact insertion view () CAN High () CAN Low () CAN Low



User Guide

Used to connect the ACC2 Open to the PC and power the sensors. This cable is necessary when you need to check the channels values on the PC through the OnLine feature or you need to calibrate the sensor.

 مطرق Black GND 50cm USB+12V power harness 7M712 Part number V02551960 Red +9-15VDC Power input White CAN High Blue CAN Low 5 pins Binder 712 male connector pinout contact insertion view 1 CAN High 4 CAN Low (5 0 2 GND (5) + Vb 3 nc 4 2) 3 of to 04040 30cm USB Harness 7M712 Part number V02551690

Used for connecting the ACC2 Open to the PC for the configuration. This cable may be used for configuring the ACC2 Open but does not allow you to evaluate the channels OnLine or to calibrate the sensors.



3 – Configuration with RaceStudio 3 software

To configure ACC2 Open, please follow these steps:

- run RaceStudio 3
- press "New" button on the top right keyboard (1)
- select ACC2 Open (2)
- name the configuration if desired (default name is ACC2 Open 4)
- press "OK" (**5**).



You need to configure ACC2 Open channels and the CAN messages.



3.1 – ACC2 Open channels configuration

First of all, you need to set the number of thermocouples you will connect; of course, you need the proper harness.



ACC2 Open supports up to four K type thermocouples. Once the number of thermocouple(s) to be connected is fixed the software warns you and the corresponding channel(s) switches to "Temperature".

To set the temperature channel:

- select the channel
- name it ("Water Temp" in the example below)
- select the function in the menu (Water Temperature)
- set the sampling frequency
- set the unit of measure (°C or °F)

📓 Channel Settings	— 🗆	×	Water Temperature
Name	Water Temp		Intake Air Temperature
Name for display	WT		Exhaust Temperature
Function	, Temperature	\$	Oil Temperature
		-	Belt Temperature
			Engine Temperature
Sensor	K type thermocouple		Temperature
Sampling Frequency	20 Hz	\$	
Unit of Measure	F	¢	
Display Precision	no decimal place	¢	no decimal place
			1 decimal place
	Save Cancel		



User Guide

In the similar way you have to configure the remaining channels: click on the channel to set and a setting panel is prompted; a lot of possible function can be set according to the kind of sensor you connect to ACC2 Open.

Name Name for display Function	Throttle Pos TPS Throttle Position	\$	Acceleration Angle Ang Velocity Position Pressure Temperature	Throttle Position Brake Position
Sensor Sampling Frequency Unit of Measure Display Precision	Position Pot AutoCal 20 Hz in 2 decimal places	÷ ÷	Voltage Fuel Level Lambda of Engine Output Gear	Clutch Position Shock Position Ride Height Position
Potentiometer Para Total potentio	meters meter travel [in] 100 Save Canc	el	no decimal place 1 decimal place <mark>2 decimal places</mark>	



3.2 - Configuring ACC2 Open CAN Output messages

ACC2 Open allows to build a CAN Output to communicate with external devices. To do so:

- set "CAN open" (1)
- set the Bit rate protocol (2)
- define the fields in the message; as default, the software proposes 4 fields, one per every analog input (3)
- "Set CAN Payload Details" panel is prompted: click the button corresponding to "Channel" and select the channel to set in "Select Channel" panel (4)
- set all other parameters in "Set CAN Payload Details" panel according to device ACC2 Open is communicates with (5)
- repeat the operation for all channels
- press "OK" in both panels (6)
- the CAN protocol is modified (7)
- save and transmit the protocol through the top left keyboard





3.3 - Configuring ACC2 Open CAN Output as CAN AiM

As said ACC2 Open can also use AiM CAN Bus. In this case there is no CAN output to set and it works as ACC2.

3.4 – OnLine

After having configured your ACC2 Open, you can verify the channels values selecting the OnLine feature.

🔛 RaceStudio3 (64 bit)						-	×
* 🧐 🕫 🛱 🖧 🐇 🐐 🖨					g a	f. 🌩	am
All ACC2 Open ³⁶ MXS 1.x ³⁶							
2 All Configurations	ACC2 Open ID 9600100 (USB)						
	Live Measures Firmware Demo						
Devices (17)	123 I, 🛞						0
Manual Collections 🗘			ACC2 O	pen - Serial 9600100			
☆ PDM32 TEST (36)	Frontal Suspens	44 mm	Brake Press	19 bar			
SMARTYCAM3 CUSTOM	i lonai suspens	44 1111	Diakerress	1.8 001			
* SOLO 2 DL (2)	Rear Suspens	0 mm	Water Temperatur	29 C			
MXS 1.3 ID 4504257							
ACC2 Open ID 9600100							
Trash (13)							



3.5 – Calibration

Some sensors, the potentiometers, for example, require a calibration, in order to set the "0" value. In this case, this procedure can be executed through our software RaceStudio 3, after having opened the here down view.locvfr





4 – Dimensions and technical characteristics

The image below shows ACC2 Open dimensions in mm [inches].



Technical characteristics:

Analog Channels:

4 fully configurable, 12 bit ADC, 200 Hz each: thermocouple(s) with dedicated cable(s), thermos resistors, 0-5v, 0-12v

• External Power:

9-12V for sensors thermocouples, thermos resistors, 0-5V 12-15V for sensors that need 12V power

- Connection:
- Connectors:
- Material:
- Dimensions:
- Weight:
- Waterproof:

CAN, USB 2 Binder 712 female connectors PA6 30% glass 44x38x19.8mm 50g IP65