AiM Infotech

Car/bike rotatory potentiometer – Race Studio 3 configuration – Throttle

Release 1.00





InfoTech



1 Introduction

This datasheet explains how to configure with Race Studio 3 the throttle potentiometer for car/bike installations. AiM instruments can measure the relative displacement between two different points using a sensor (rotary potentiometer) directly connected to the two measure points. This sensor may be used to measure angular displacements, such as throttle position.

2 Setup with Race Studio 3

To load the potentiometer in the logger configuration run the software and select the configuration you are going to load it on.

RaceStudio3 3.08.11		
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	New Clone Import Export Receive Transmit Delete	Device Configurations
2 All Configurations		٩
	✓ Name	Date
Devices (4)	MXL2 03	11 marzo
Manual Collections Q		Received on
	EV05	12 febbraio
	MXG	25 marzo 2015
	□	9 settembre 2014
	SmartyCamHD 01	26 giugno 2014
	MXL2 02	20 giugno 2014
	MXL2 01	26 maggio 2014
Connected Devices		
I No device connected		



Enter the configuration (in the example MXL2 03) and the related "Channels" layer.

- Select the channel where to set the potentiometer on in the example channel 5 (1) and fill in the panel that shows up
- Function: "Percent" (2)
- Sensor: "Percentage Pot. Calib" (**3** this implies that the potentiometer will be calibrated as shown in the following pages)
- Fill in the other fields
- Click "Save"

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All MXL2										
Save	Save As	Close T	ransmit							
Channels	ECU Stream	CAN2 Stream Mat	th Channels	Parameters Shift Lights	and Alarms Displa	iy Sma	irtyCam Stre	am CAN	Expansions	
	ID	Name		Function	Sensor	_	Unit	Freq	Parameters	
	RPM	RPM		RPM	RPM Sensor		rpm	20 Hz	max: 16000 ; factor: /1 ;	
	Spd1	Speed1		Vehicle Cod	Coood Copoor		km/b 0 1	2011- X	wheel: 1600 ; pulses: 1 ;	
	Spd2	Speed2		Name	Channel05				wheel: 1600 ; pulses: 1 ;	
	Spd3	Speed3		Function 2	Percent			÷ _	wheel: 1600 ; pulses: 1 ;	
	Spd4	Speed4		U.					wheel: 1600 ; pulses: 1 ;	
	Ch01	Channel01	9	Sensor 3	Percentage Pot Calil	3				
	Ch02	Channel02			20.117					
	Ch03	Channel03		Sampling Frequency	20 HZ			- I		
	Ch04	Channel04		Unit of Measure	%					
	Ch05	Channel05	0	Display Precision	2 decimal places			÷		
	Ch06	Channel06							max travel: 50 ;	
	Ch07	Channel07								
	Ch08	Channel08								
	AccX	Acceleromete	rX							
	AccY	Acceleromete	rY			Save	Can	:el		
	AccZ	Acceleromete	rZ	Vertical Accel	AiM Internal Acceleror	neter	g 0.01	20 Hz		
	GyrX	GyroX		Ang Velocity	AiM Internal Gyro		deg/s	20 Hz		
	GyrY	GyroY		Ang Velocity	AiM Internal Gyro		deg/s	20 Hz		
	GyrZ	GyroZ		Ang Velocity	AiM Internal Gyro		deg/s	20 Hz		
	Spd	GPS Speed		Vehicle Spd	AiM GPS		km/h 0.1	10 Hz		
	OdD	Odometer		Odometer Total	AiM ODO		km 0.1	1 Hz		



When the software comes back to "Channels" layer the potentiometer has been set on the desired channel as shown here below.

• Transmit the configuration to the logger pressing "Transmit" on the top keyboard.

Save Save As Close Transmit									
Channels ECU stream GANZ stream Math Channels Parameters Shirt Lights and Alarms Display SmartyCam Stream CA								Expansions	
	ID		Name	Function	Sensor	Unit	Freq	Parameters	
	RPM		RPM	RPM	RPM Sensor	rpm	20 Hz	max: 16000 ; factor: /1 ;	
	Spd1		Speed1	Vehicle Spd	Speed Sensor	km/h 0.1	20 Hz	wheel: 1600 ; pulses: 1 ;	
	Spd2		Speed2	Vehicle Spd	Speed Sensor	km/h 0.1	20 Hz	wheel: 1600 ; pulses: 1 ;	
	Spd3		Speed3	Vehicle Spd	Speed Sensor	km/h 0.1	20 Hz	wheel: 1600 ; pulses: 1 ;	
	Spd4		Speed4	Vehicle Spd	Speed Sensor	km/h 0.1	20 Hz	wheel: 1600 ; pulses: 1 ;	
	Ch01	\checkmark	Channel01	Voltage	Generic 0-5 V	mV	20 Hz		
	Ch02	\checkmark	Channel02	Voltage	Generic 0-5 V	mV	20 Hz		
	Ch03	\checkmark	Channel03	Voltage	Generic 0-5 V	mV	20 Hz		
	Ch04	\checkmark	Channel04	Voltage	Generic 0-5 V	mV	20 Hz		
	Ch05	☑	Channel05	Percent	Percentage Pot. Calib	% 0.01	20 Hz		
	ChUb	☑	Channel06	Position	Position Pot. AutoCal	mm	20 Hz	max travel: 50 ;	
	Ch07	☑	Channel07	Voltage	Generic 0-5 V	mV	20 Hz		
	Ch08	\checkmark	Channel08	Voltage	Generic 0-5 V	mV	20 Hz		
	AccX	\checkmark	AccelerometerX	Inline Accel	AiM Internal Accelerometer	g 0.01	20 Hz		
	AccY	\checkmark	AccelerometerY	Lateral Accel	AiM Internal Accelerometer	g 0.01	20 Hz		
	AccZ	\checkmark	AccelerometerZ	Vertical Accel	AiM Internal Accelerometer	g 0.01	20 Hz		
	GyrX	~	GyroX	Ang Velocity	AiM Internal Gyro	deg/s	20 Hz		
	GyrY	\checkmark	GyroY	Ang Velocity	AiM Internal Gyro	deg/s	20 Hz		
	GyrZ	~	GyroZ	Ang Velocity	AiM Internal Gyro	deg/s	20 Hz		
	Spd	\checkmark	GPS Speed	Vehicle Spd	AIM GPS	km/h 0.1	10 Hz		
	OdD		Odometer	Odometer Total	AiM ODO	km 0.1	1 Hz		



To calibrate the potentiometer:

• press "Device" on the top keyboard

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Save	Save As	Close	Transmit						
Channels	ECU Stream	CAN2 Stream	Math Channels	Parameters Shift Lights	and Alarms Display Sma	artyCam Stre	am CAN E	xpansions	
	ID	Name	_	Function	Sensor	Unit	Freq	Parameters	
	RPM	RPM		RPM	RPM Sensor	rpm	20 Hz	max: 16000 ; factor: /1 ;	
	Spd1	Speed1		Vehicle Spd	Speed Sensor	km/h 0.1	20 Hz	wheel: 1600 ; pulses: 1 ;	
		0							_

• select the configuration – in the example "MXL2 ID 410"

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∂ Utilities	
Connected Devices	
C MXL2 ID 410	
AIM-WIFI: No devices in view.	

- press "Calibrate";
- the system shows all channels to be calibrated: choose the one where the potentiometer has been set in the example "Channel 5"

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A Utilities			Ν	MXL2 ID 410		
	Live Measures Dov	wnload Properties	Odometers	Logo Firmware		
Connected Devices	Stop Live Measures	Auto Calibrate	Calibrate	Start Recording mV Values		
MXL2 ID 410	Lap Time	Channel05		Logger Temperature	26.5	c î
	External Voltage	14	mV	RPM	0	rpm
	Speed1	0.0	km/h	Speed2	0.0	km/h
	Speed3	0.0	km/h	Speed4	0.0	km/h
	Channel01	4	mV	Channel02	28	mV
	Channel03	29	mV	Channel04	34	mV
	Channel05	2.30	%	Channel06	0	mm
	Channel07	32	mV	Channel08	33	mV



- fill in the values corresponding to the two measure points:
 - o "0" for point "A"
 - "100" for point "B"

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🔄 Utilities				MXL2 ID 410	
	Live Measures	Download Pr	roperties	Odometers Logo Firmware	
Connected Devices					
C MXL2 ID 410				Chappel05	
AIM-WIFI: No devices in view.				Chaimeios	
		Reve	erse	Set Point A Set Point B Save	Abort
			Move	e 'channel' to two positions (Points A and B then click 'Save' to confirm calibration	i),
	н			119 mV : 130,00 %	
	Point A				Point B
	0	%			100 %
	113	mV			119 mV

- with the potentiometer in its zero position press "Set Point A" as shown here below on the left;
- with the throttle all open press "Set Point B" as shown here below on the right
- press "Save"

	Channel05 Reverse Set Point A Set Point B Save	Abort	Channel05 Reverse Set Point A Set Point B Save Abort				
	Move 'channel' to two positions (Points A and B), then click 'Save' to confirm calibration		Move 'channel' to two po then click 'Save' to	sitions (Points A and D), confirm calibration			
H 0 -	111 mV : -130,00 %		5000 mV : 10	0.02 %			
Point A		Point B	Point A	Point B			
0	5	130 %	0 %	100 %			
115	mV	119 mV	111 mV	5000 mV			