AiM Infotech

Car/bike linear potentiometer Race Studio 2 configuration – steering angle

Release 1.00







1 Introduction

The car/bike linear potentiometer diameter is supported by both a AiM configuration software and can measure the dampers compression or extension as well as the steering rotation measured through the rack displacement. In this datasheet you will:

- load it in the logger configuration using **Race Studio 2**
- use it to measure **steering rotation** through the rack displacement

2 Setup with Race Studio 2

To load the potentiometer in AiM logger configuration, with the logger switched on and connected to a PC:

- run the software, select the logger in use and the configuration to set the potentiometer on
- enter "Channels" layer and select the channel where to set the potentiometer on (in the example channel 3); select "Mid zero potentiometer" in "Sensor type" column and "deg .1" in "Measure unit" column as shown here below.

	🔛 System manager	😫 System manager													
Baning Data Pager	Trans		Receive	CAN Net info	Smarty/Cam I settin		Set acquisition system time	•							
AIM Sportline	Current configuration														
World Leader in Data Acquisition	Installation name	Data logger type	Ecu	Lap Timer	Vehicle name Ar	ailable time	Time with GPS	Total frequency	Master frequent	Expansions frequen	ncy Tol. Expansions				
	LOGGER_CONF	MXL PISTA	None - None	by GPS	READ S	32.39 (h.m.s)	4.06.35 (h.m.s)	121 (Hz)	121 (Hz)	0 (Hz)	0				
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Device Configuration						Generic lines	r 0-50 mV		ng 1 🔤 🗐						
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Device Info	СН_3 СН_4 СН_5 СН_6 СН_7	Frabled Frabled Frabled Frabled Frabled Frabled Frabled	Channel_3 Channel_4 Channel_5 Channel_6 Channel_7		10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz	Generic Inea Thermocoup Thermocous Temperature Temperature Temperature Water temp. Water temp. Water temp. Water temp. there temp. Temperature Water temp. there temp	r 0-30 mV le ance PT100 VD0 40-120 °C VD0 50-150 °C VD0 60-200 °C (CLIO) (SUZUKI SUPERSPORT) 0-2 bar		91 -	0.0 0.0 0.0 0.0	5 5.0 5.0 5.0 5.0				
Device Info	CH_3 CH_4 CH_5 CH_6 CH_7 CH_8 CALC_GEAR	Image: Constraint of the second s	Channel_3 Channel_4 Channel_5 Channel_6 Channel_7 Channel_8		10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz	Generic Inea Thermocoup Thermocous Temperature Temperature Temperature Water temp. Water temp. Water temp. Water temp. there temp. Temperature Water temp. there temp	r 0-30 mV le ance PT100 VD0 40-120 °C VD0 50-150 °C VD0 60-200 °C (CLIO) (SUZUKI SUPERSPORT) 0-2 bar		91 - 1 - 1 - 1 - 1 - 1 - 1 -	0.0 0.0 0.0 0.0 0.0	5 5.0 5.0 5.0 5.0 5.0				
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- click out of the cell
- transmit the configuration to the logger pressing "Transmit" on the software top keyboard.



InfoTech

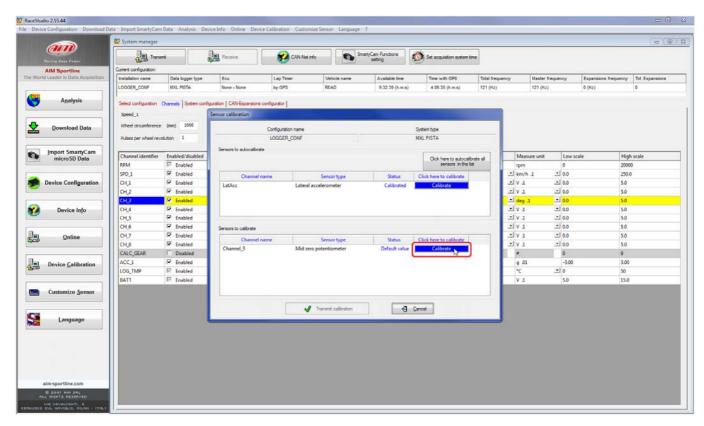
To calibrate the potentiometer:

• Press "Device Calibration"

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AIM Sportline World Leader in Data Acquisition	Current configuration													
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microSD Data	RPM SPD_1	Enabled/disabled	Engine Speed_1		10 Hz	L Engine revolu Speed			rpm km/h_1	0 	2000	0		
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microSD Data	ярм SPD_1 CH_1 CH_2	Enabled/disabled	Engine Speed_1 Channel_1 Channel_2		10 Hz 2 10 Hz 2 10 Hz 2 10 Hz 2	Engine revolu Speed Generic linear Generic linear	r 0-5 V r 0-5 V	। • •	rpm km/h 1 V 1 V 1	0 1 0.0 1 0.0 1 0.0	2000 250.0 5.0 5.0	0		
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Device Configuration	RPM SPD_1 CH_1 CH_2 GH_8 CH_4	Enabled/disabled Enabled En	Engine Speed_1 Channel_1 Channel_2 Channel_3 Channel_4		10 Hz 2 10	Engine revolu Speed Generic linear Generic linear Mid zero pote Generic linear	ir 0-5 V ir 0-5 V entiometer ir 0-5 V	। । । ।	rpm km/h 1 V 1 V 1 deg 1 V 1	0 1 0.0 2 0.0 2 0.0 2 0.0 2 0.0	2000 2503 5.0 5.0 5.0 5.0 5.0	0		
Device Configuration	RPM SPD_1 CH_1 CH_2 CH_2 CH_3 CH_4 CH_5	Enabled/disabled	Engine Speed_1 Channel_1 Channel_2 Channel_4 Channel_5		10 Hz	Engine revolu Speed Generic linear Generic linear Generic linear Generic linear Generic linear	rr 0-5 V err 0-5 V err 0-5 V irr 0-5 V irr 0-5 V	ب ب ب ب	rpm km/h 1 V 1 V 1 deg 1 V 1 V 1 V 1	0 1 0.0 1 0.0 1 0.0 1 0.0 1 0.0 1 0.0	2000 2501 5.0 5.0 5.0 5.0 5.0	0		
Device Configuration	RPM SPD_1 CH_1 CH_2 CH_2 CH_3 CH_4 CH_5 CH_6	Enabled/disabled	Engine Speed_1 Channel_1 Channel_2 Channel_4 Channel_4 Channel_5 Channel_6		10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz	Engine revolu Speed Generic linear Generic linear Mid zero pote Generic linear Generic linear Generic linear Generic linear	r 0-5 V r 0-5 V entiometer r 0-5 V r 0-5 V r 0-5 V	ب ب ب ب ب	rpm km/h 1 V 1 V 1 deg 1 V 1 V 1 V 1 V 1	0 1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	2000 250/ 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	0		
Device Configuration	8PM SPD_1 CH_1 CH_2 CH_2 CH_4 CH_5 CH_6 CH_6 CH_7	Enabled/disabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled	Engine Speed_1 Channel_1 Channel_2 Channel_3 Channel_4 Channel_5 Channel_6 Channel_7		10 Hz 2 10	Engine revolu Speed Generic linear Generic linear Generic linear Mid sero pote Generic linear Generic linear Generic linear Generic linear Generic linear Generic linear	r 0-5 V r 0-5 V r 0-5 V r 0-5 V r 0-5 V r 0-5 V r 0-5 V	+ + + + + + + + + + + + + + + + + + +	rpm km/h 1 V 1 V 1 V 1 V 1 V 1 V 1 V 1 V 1	0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0	2000 250/ 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	0		
Device Configuration	89M 5PD_3 CH_3 CH_4 CH_5 CH_6 CH_7 CH_8	Enabled/disabled IF Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled	Engine Speed_1 Channel_1 Channel_2 Channel_3 Channel_4 Channel_5 Channel_7 Channel_7		10 Hz 2 10	Engine revolu Speed Generic linea Generic linea Mid sero pote Generic linea Generic linea Generic linea Generic linea Generic linea	r 0-5 V entiometer r 0-5 V r 0-5 V r 0-5 V r 0-5 V r 0-5 V	+ + + + + + + + + + + + + + + + + + +	rpm km/h 1 V	0 1 0.0 1 0.0	2000 250/ 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	0		
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Calibration panel shows up:

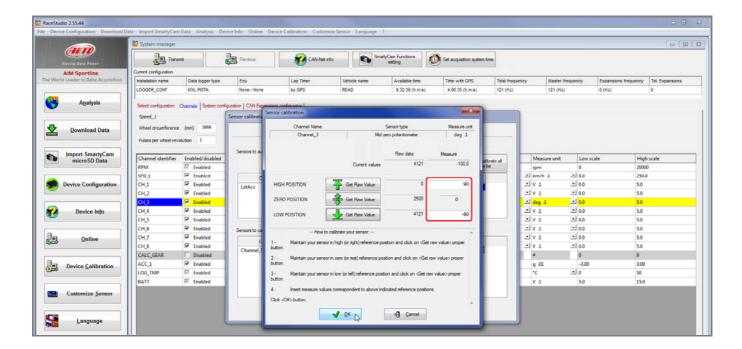
• Press "Calibrate" button of "Mid zero potentiometer"





The software shows "Calibration panel" to learn the three calibration points:

• manually fill in values corresponding to the three angular position: for example 90, 0 and -90.



 swerve to the right according to the angle you wish to calibrate and press "Get raw value" corresponding to "High position"

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AIM Sportline	Current configuration											
World Leader in Data Acquisition	Installation name	Data logger type	Ecu	Lap Timer	Vehicle name	Available time	Time with GPS	Te	otal frequency	Master frequency	Expansions frequency	Tot. Expensions
	LOGGER_CONF	MOL PISTA	None - None	by GPS	READ	9.32.39 (h.m.)	i) 4.06.35 (h.m.s	1) 12	21 (Hz)	121 (Hz)	0 (Hz)	0
Analysis	1	10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -										
C Manten	Select configuration	Channels System config		sensor configurator 1 Sensor calibration			×					
	Speed_1		Sensor calibration	Sensor calibration								
Download Data	Wheel circumference	e (mm) 1666		Channel Name		Sensor type	Measure unit					
Download Data				Channel_3		Mid zero potentiometer	deg 1	_				
	Pulses per wheel re-	rolution 1	dec - co									
Import SmartyCam	En	F. 11 41 F. 11 4	Sensors to au			Raw data	Measure	-	1	sure unit Lo	w scale Hig	h scale
microSD Data	Channel identifier Enabled/disabled RPM IT Enabled			0		values C	-100.0	altrate al		sure unit Lo		
	SPD_1	Enabled			0.00000	1000			rpm	-	200	
Device Configuration	CH1	Enabled	d		77	4097			⊥ km/r	11 100 100		4
Device Configuration		Enabled	LatAcc	HIGH POSITION	Get Raw V	ALC: NO	90		-V1	± 0.0		
	CH_2				Get Raw V	1493	0					
-	CH3	Enabled		abie resident	- ourisant				스 deg			
Device Info	CH_4	Enabled		LOW POSITION	Get Raw V	due C	-90		- V 1	-10.0		
	CHUS	F Enabled		-					v	± 0.0		
	CH_6	Enabled	Sensors to ca	- How to a	albrate your senso		i a		- V 1	- 0.0		
Quline	CH_7	Enabled	c	1. Haintain un a annar	in high (as dath) and	ence position and click on <	tet muunitus annes		- V 1	- 0.0		
and the second second	CH_S	Enabled	Channel_3	button.	n nign (or ogra/reit	ence presson and second of	ast raw value / proper	N	- V 1	-1 0.0	5.0	
	CALC_GEAR	Disabled	Character a	2 - Maintain your sensor	in zero (ar red) refe	ence position and click on <	int raw value> proper	r -		0	9	
Device Calibration	ACC_1	F Enabled		button.					g .01	-3.1	00 3.00	
	LOG_TMP	Enabled		3 - Maintain your sensor	in low (or left) refere	nce position and click on «Ge	t raw value> proper		*C	- 0	50	
	BATT	F Enabled		button.					V 1	5.0	15.0	
Customize Sensor				4 - Insert measure values	correspondent to a	bove indicated reference po	tions.					
Customize 201501				Click (OK) button								



- place the steering in its zero position and press "Get raw value" corresponding to "Zero position" (image below on the left)
- swerve to the left according to the angle you wish to calibrate and press "Get raw value " corresponding to "Low position" (image below on the right)

	Current values	Raw data 2500	Measure 0.0		Current values	Raw data 4113	Measure 64.5
HIGH POSITION	Get Raw Value	0	90	HIGH POSITION	Get Raw Value	0	90
ZERO POSITION	Get Raw Value	2500	0	ZERO POSITION	Get Raw Value	2500	0
LOW POSITION	Get Raw Value	0	-90	LOW POSITION	Get Raw Value	0	-90

• press OK

When calibration is over potentiometer status will turn to "Calibrated" and become red:

• Transmit the calibration to the logger pressing "Transmit Calibration"

and	System manager	😰 System manager														
Basing Base Power	Trans	ent (Receive 🔗 CAN Net info		let info	SmartyCam Functions setting		Set acquisition system time		e						
AIM Sportline	Current configuration								_							
rid Leader in Data Acquisition	Installation name	Data logger type	Ecu	Lap Timer	Vehicle	name	Available time		Time with GPS	Total freque		laster frequency	Expansions freq			
Analysis	Select configuration	MOL PISTA Channels System config		by GPS	READ		9.32.39 (h.m.s)	_	4.06.35 (h.m.s)	121 (Hz))	21 (Hz)	0 (Hz)	0		
Download Data	Wheel droumference		Sensor calibration													
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	Puises per whee rev	iolubon +	-					MAL	FISTA							
Import SmartyCam	Channel identifier	Enabled/disabled	Sensors to autocalibri	ste				Г			Measure	unit Le	w scale	High scale		
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	SPD_1	Enabled	Channel	-			Status	100	k here to calibrate	_	1 km/h 1			250.0		
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A sub-second second	CH 2	F Enabled	Labyer	Late	trai acceleromese		Calibrated		Calibrate		LV1	- 0.0		5.0		
	CH 3	F Enabled									deg	-1 0.0		5.0		
Device Info	CH_4	F Enabled									- V 1	. 0.0		5.0		
and the second s	CHUS	F Enabled									-1V1	크 0.0		5.0		
	CH 6	Enabled	Sensors to calibrate								1V1	-1 0.0		5.0		
Online	CH.7	Enabled		Second 1	11220-10110		10200000	110 c.c.	1.0000000000000000000000000000000000000		-1V1	-1 0.0		5.0		
<u>w</u> inne	CHIS	F Enabled	Channel		Sensor ty		Status	Cle	k here to calibrate		. V 1	± 0.0		5.0		
	CALC_GEAR	C Disabled	Channel_3	Mid	zero potentiome	eter	Calibrated		Calibrate			0		9		
Device Calibration	ACC_1	F Enabled									g .01	-3.	00	3.00		
Device Fauntation	LOG_TMP	17. Enabled									°C	- 0		50		
	BATT	E Enabled									V 1	5.0		15.0		
Customize Sensor				100												
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Language		le l							_	1						
aim-sportline.com																
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