AiM Infotech

Car/bike linear potentiometer diameter 13

Release 1.00







This datasheet explains how to install and configure the car/bike linear potentiometer 13 mm diameter and shows its technical characteristics.

1 Introduction

AiM loggers can measure the displacement between two points using a sensor (linear potentiometer) directly connected to the points of measure. This potentiometer can measure linear displacements like:

- dampers compression or extension
- steering rotation measured through the rack displacement

Different use implies different software management as explained in chapters 4 and 5.

2 Part numbers



Car/bike linear potentiometer part numbers depends on its travel:

- 50 mm travel potentiometer X05LPAIM050
- 75 mm travel potentiometer X05LPAIM075
- 100 mm travel potentiometer X05LPAIM100
- 150 mm travel potentiometer X05LPAIM150



3 Installation

To fix the potentiometer use the two fixing points highlighted here below.



When installing the sensor:

- be very careful avoiding possible bending of the internal cylinder; these bendings, occurring when over tightening the screws or in case of incorrect mounting, can seriously damage the sensor
- extract the internal cylinder for about 5 mm (0.2 inches) from the sensor lower boundary position.

Please note: do not use this sensor to measure distances beyond the potentiometer maximum travel.

The car/bike linear potentiometer can be connected to any analog channel of AiM loggers.



4 Software setup – suspensions

Once the potentiometer installed it is necessary to load it in the configuration of its logger and then calibrate/auto calibrate it.

4.1 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.





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 6 (1) and fill in the panel that shows up
- Function: "Position" (2)
- Sensor: "Position Pot. AutoCal" (**3** this implies that the potentiometer will be auto-calibrated as shown in the following pages)
- Fill in the other fields
- Fill "Total Potentiometer travel" box with the potentiometer travel in mm in the example we used a 50mm travel potentiometer (**4**)
- Click "Save"

🚈 RaceStudio3	3 3.08.06										—
* ≈	۵۰	۲	ኔ 🗠 🐔 🖨							(î•	AID
All MXL2 0)3 ×										
Save	Save As		Close Transmit								
Channels	ECU Stream	CAN	2 Stream Math Channels	Parame	ters Shift Lights	and Ala	arms Display Sma	rtyCam Stre	am CAN Ex	pansions	
	ID	\checkmark	Name	Functio	on	Sens	sor	Unit	Freq	Parameters	
	RPM	✓	RPM	RPM		RPM S	Sensor	rpm	20 Hz	max: 16000 ; factor: /1 ;	
	Spd1	☑	Speed1	Vehicle S	pd	Speed	d Sensor	km/h 0.1	20 Hz	wheel: 1600 ; pulses: 1 ;	
1	Spd2	✓	Speed2	Vehicle S	nd	Sneed	d Sensor	km/h 0 1	20.Hz	wheel: 1600 ; pulses: 1 ;	
	Spd3	\checkmark	Speed3	Vehicle	Channel Settings		Observation			eel: 1600 ; pulses: 1 ;	
	Spd4	~	Speed4	Vehicle :	Name	•	Decition		•	eel: 1600 ; pulses: 1 ;	
	Ch01	\checkmark	Channel01	Voltage	Function	2	Position				
	Ch02	✓	Channel02	Voltage		-					
	Ch03	✓	Channel03	Voltage	Sensor	3	Position Pot. AutoCa	l	\$		
	Ch04	~	Channel04	Voltage	Sampling Frequer	ncy	20 Hz		\$		
	Ch05	\checkmark	Channel05	Voltage	Unit of Measure		mm		\$		
	Ch06	☑	Channel06 1	Voltage	Display Precision		no decimal place		\$		
	Ch07	☑	Channel07	Voltage	-Potentiometer Pa	aramet	ter				
	Ch08	✓	Channel08	Voltage	Total po	tention	neter travel [m	m] 50	4		
	AccX	☑	AccelerometerX	Inline Ac					_		
	AccY	✓	AccelerometerY	Lateral A							
	AccZ	\checkmark	AccelerometerZ	Vertical							
	GyrX	✓	GyroX	Ang Velo							
	GyrY	\checkmark	GyroY	Ang Velo				Save	Cancel		
	GyrZ	\checkmark	GyroZ	Ang Velo	city	AiM In	ternal Gyro	deg/s	20 Hz		
	Spd	\checkmark	GPS Speed	Vehicle S	pd	AiM G	PS	km/h 0.1	10 Hz		
	OdD	✓	Odometer	Odomete	er Total	AiM O	DO	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.

nnole	Save As		Close Transmit	Daramatora Chiff Lighta	and Alarma Dieplay Smr	artuCom Stro	om CANI	Evenneinen
lanneis	ECU Stream		2 Stream Math Channels		and Alarms Display Sma	artyCam Stre		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	☑	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	Voltage	Generic 0-5 V	mV	20 Hz	
	Ch06		Channel06	Position	Position Pot. AutoCal	mm	20 Hz	max travel: 50 ;
	Cil07	☑	Channei07	vonage	Generic 0-5 V	mv	20 HZ	
	Ch08	\checkmark	Channel08	Voltage	Generic 0-5 V	mV	20 Hz	
	AccX	☑	AccelerometerX	Inline Accel	AiM Internal Accelerometer	g 0.01	20 Hz	
	AccY	✓	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	\checkmark	GyroX	Ang Velocity	AiM Internal Gyro	deg/s	20 Hz	
	GyrY	\checkmark	GyroY	Ang Velocity	AiM Internal Gyro	deg/s	20 Hz	
	GyrZ	\checkmark	GyroZ	Ang Velocity	AiM Internal Gyro	deg/s	20 Hz	
			GPS Speed	Vehicle Spd	AIM GPS	km/h 0.1	10 Hz	
	Spd	_		Odemeter Tetal	AIM ODO	km 0 1	1 Hz	



To auto-calibrate the potentiometer:

- enter "All" layer and press "Device" (1)
- select the logger in the example MXL2 ID 410 (2)
- in "Live Measures" layer, keeping the potentiometer in its zero position, select the channel where the potentiometer has been set in the example channel 6 (**3**)
- press "Auto Calibrate" (4)

🕋 RaceStudio3 3.08.06							x
* 🚣 🍄 🔂 🖽 🗳	0				((:-	😤 🕖	D
All MXL2 03 30				MYLOID 440			_
24		load Droportion	Odamatara I.				
Configurations	Stop Live Measures	Auto Calibrate	Calibrate S	Start Recording mV Values			
Devices (4)	Lap Time	0:00.000	(0)	Logger Temperature	27.1	с	*
Manual Collections	External Voltage	12	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	6	mV	Channel02	29	mV	
	Channel03	29	mV	Channel04	35	mV	
	Channel05	30	mV	Channel06 3	0	mm	
	Channel07	31	mV	Channel08	32	mV	Е
	AccelerometerX	-0.71	g	AccelerometerY	0.68	g	
	AccelerometerZ	0.16	g	GyroX	0.5	deg/s	
	GyroY	-0.1	deg/s	GyroZ	1.3	deg/s	
	SM_RPM		rpm	SM_PPS		%	
	SM_PEDAL_ANGLE		%	SM_WHSPD_FL		km/h	
Connected Devices	SM_WHSPD_FR		km/h	SM_WHSPD_RL		km/h	
C MXL2 ID 410	SM_WHSPD_RR		km/h	SM_VEH_SPEED		km/h	
	SM_ECT		С	SM_OIL_T		С	
	SM_OIL_P		bar	SM_STEERANGLE		deg	
	SM_STEERSPEED		deg/s	SM_BRAKE_SW		#	
	SM_GEAR	-	gear	SM_FUEL_LEVEL		1	
	SM_KICKDOWN		#	SM_ATM_PRESS		bar	
Cestino Cestino	SM FUEL TEMP		c	SM ENGINE TEMP		c	-



- Keep the potentiometer in its zero position as shown here below Press "Auto calibrate All". ٠
- •

RaceStudio3 3.08.06		
* 🚣 🏘 🔂 🖽 🗳		?
AII MXL2 03 ³⁶		
	MXL2 ID 4	110
Contra da la contra da	Live Messures Download Properties Odometers Logo Eirmware	
All Configurations	Live meddaled Download Properties Odoniciers Eogo Finnware	
Devices (A)		
Manual Collections		Autocalibrate All Exit
	Name	instant Value
	Channel06	0 mm
	AccelerometerX	-0.70 g
	AccelerometerY	0.69 g
	AccelerometerZ	0.16 g
	GyroX	0.2 deg/s
	GyroY	-0.1 deg/s
	GyroZ	1.3 deg/s
Connected Devices		
MXL2 ID 410		
: No devices in view.		
~		
Cestino		



4.2 <u>Setup with Race Studio 2</u>

To load the potentiometer in AiM logger configuration:

- run the software
- select the logger in use and the configuration to set the potentiometer on
- enter "Channels" layer
- Select the channel where to set the potentiometer on (in the example channel 3) and select "Distance potentiometer" in "Sensor type" column as shown here below.





- click out of the cell
- a panel appears bottom left of the layer as below
- insert potentiometer maximum travel (in the example 50 mm)
- transmit the configuration to the logger pressing "Transmit" in the software top keyboard.

RaceStudio 2.55.44												
File Device Configuration Download Dat	ta Import SmartyCam	Data Analysis Devi	e Info Online Device	Calibration Customize	Sensor Lan	guage ?						
	🚟 System manager											- • •
Racing Data Power	Transn	*	Receive	CAN-Net info		SmartyCam Fun setting	ctions	Set acquisition system time				
AIM Sportline	Current configuration											
The World Leader in Data Acquisition	Installation name	Data logger type	Ecu	Lap Timer	Vehicle nam	ne Avail	able time	Time with GPS	Total frequency	Master frequency	Expansions frequency	Tot. Expansions
	LOGGER_CONF	MXL PISTA	KTM - X-BOW	by GPS	READ	3.42	.47 (h.m.s)	2.27.06 (h.m.s)	311 (Hz)	311 (Hz)	0 (Hz)	0
A <u>n</u> alysis	Select configuration (Channels System config	aration CAN-Expansions o	onfigurator								
Download Data	Wheel circumference	(mm) 1666										
	Puises per wheel revo	lution 1										
Import SmartyCam	Channel identifier	Enabled/disabled	Channel name		Sam	pling frequency	Sensor type		Measure	unit Low sc	ale High :	cale ^
microso Data	RPM	Disabled	Engine		10 H	iz -	Engine revolu	ition speed	rpm	0	20000	
	SPD_1	Enabled	Speed_1		10 H	lz 🔹	Speed		km/h .1	· 0.0	250.0	
Device Configuration	CH_1	Enabled	Channel_1		10 H	Iz 💌	Generic linear	r 0-5 V	▼ V .1	. 0.0	5.0	
	CH_2	Enabled	Channel_2		10 H	iz 🔹	Generic linear	r 0-5 V	.V .1	• 0.0	5.0	
	CH_3	Enabled	Channel_3		10 H	iz 🗠	Distance pote	entiometer	1 mm ـ1	<mark>.0 ات</mark>	5.0	
Device Info	CH_4	🗹 Enabled	Channel_4		10 H	iz 🔹	Generic linear	r 0-5 V	- V .1	· 0.0	5.0	E
	CH_5	 Enabled 	Channel_5		10 H	lz 💌	Generic linear	r 0-5 V	.V .1	 0.0	5.0	
	CH_6	Enabled	Channel_6		10 H	Iz 💌	Generic linear	r 0-5 V	▼ V .1	 0.0	5.0	
Qnline	CH_7	Enabled	Channel_7		10 H	iz 💌	Generic linear	r 0-5 V	- V.1	. 00	5.0	
	CH_8	Enabled	Channel_8		10 H	iz -	Generic linear	r 0-5 V	- V .1	- 0.0	5.0	
	CALC_GEAR	Disabled	Calculated_Gea		10 H	iz 🕒	Calculated Ge	ear	#	0	9	
Device Calibration	ACC_1	Enabled	LatAcc		10 H	lz 💌	Lateral accele	rometer	g .01	-3.00	3.00	
	LOG_TMP	Enabled	Datalogger_Tem		10 H	lz 👱	Cold joint		°C	_ 0	50	
	BATT	🗵 Enabled	Battery		1 H:		Battery		V.1	5.0	15.0	
Customize Sensor	ECU_1	🗵 Enabled	KTM_RPM		10 H	iz 🔹	Engine speed	sensor	rpm	0	10000	
	ECU_2	Enabled	KTM_WH_SPD_FL		10 H	iz 💌	Speed sensor		km/h .1	 0.0	300.0	
	ECU_3	Enabled	KTM_WH_SPD_FR		10 H	lz 💌	Speed sensor		km/h .1	 0.0	300.0	
	ECU_4	Enabled	KTM_WH_SPD_RL		10 H	lz 💌	Speed sensor		km/h .1	그 0.0	300.0	
	ECU_5	Enabled	KTM_WH_SPD_RR		10 H	iz 💌	Speed sensor		km/h .1	± 0.0	300.0	
	ECU_6	Enabled	KTM_PPS1		10 H	lz 💌	Throttle posit	ion sensor	% .1	0.0	105.0	
									-			
	Channel Name	Sensor t	ype Measu	re unit								
	Channel_3	Distance pote	ntiometer mm	.1								
	NUL/NZ											
	Parameters			14								
aim-sportline.com	1 Maxim	um used travel of potenti	ometer \$0									
ALL RIGHTS RESERVED												
VIA CAVALCANTI, 8 CERNUSCO SUL NAVIGLIO, HILAN - ITALY												



To calibrate the potentiometer:

• Press "Device calibration"

🔛 RaceStudio 2.55.44												
File Device Configuration Download Dat	a Import SmartyCam	Data Analysis Device	Info Online Device O	Calibration Customize S	iensor Language ?							
	🕌 System manager											- • •
Racing Data Power	Transm	u	Receive	CAN-Net info	SmartyCa se	n Functions ting	Set acquisition system time	,				
AIM Sportline	Current configuration											
The World Leader in Data Acquisition	Installation name	Data logger type	Ecu	Lap Timer	Vehicle name	Available time	Time with GPS	Total frequency	Master 1	requency	Expansions frequency	Tot. Expansions
	LOGGER_CONF	MXL PISTA	KTM - X-BOW	by GPS	READ	3.42.47 (h.m.s	2.27.06 (h.m.s)	311 (Hz)	311 (Hz)		0 (Hz)	0
A <u>n</u> alysis	Select configuration (Channels System configure	tion CAN-Expansions cor	figurator								
Download Data	Wheel circumference Pulses per wheel revo	(mm) 1666 lution 1										
Import SmartyCam	Channel identifier	Enabled/disabled	Channel name		Sampling freque	ncy Sensor	type		Measure unit	Low scale	e High so	ale
- Inicioso Data	RPM	Disabled	Engine		10 Hz	Engine	revolution speed		rpm	0	20000	
	SPD_1	Enabled	Speed_1		10 Hz	■ Speed		•	km/h .1	• 0.0	250.0	
Device Configuration	CH_1	Enabled	Channel_1		10 Hz	I Generic	linear 0-5 V	•	V .1	1 0.0	5.0	
	CH_2	Enabled	Channel_2		10 Hz	🔳 Generic	linear 0-5 V	•	V .1	 0.0	5.0	
	CH_3	Enabled	Channel_3		10 Hz	ゴ Distanc	e potentiometer	<u>.</u>	mm .1	<u>- 1</u> 0.0	5.0	
Device Info	CH_4	Frabled	Channel_4		10 Hz	🖃 Generic	: linear 0-5 V	•	V .1	• 0.0	5.0	=
	CH_5	Enabled	Channel_5		10 Hz	🖃 Generic	: linear 0-5 V	•	V .1	• 0.0	5.0	
	CH_6	Enabled	Channel_6		10 Hz	🔳 Generic	: linear 0-5 V	•	V .1	• 0.0	5.0	
n Online	CH_7	Enabled	Channel_7		10 Hz	I Generic	linear 0-5 V	•	V .1	I 0.0	5.0	
	CH_8	Enabled	Channel_8		10 Hz	I Generic	linear 0-5 V	•	V .1	J 0.0	5.0	
	CALC_GEAR	C Disabled	Calculated_Gea		10 Hz	🖃 Calcula	ted Gear		#	0	9	
Device Calibration	ACC_1	Enabled	LatAcc		10 Hz	🔳 Lateral	accelerometer		g .01	-3.00	3.00	
	LOG_TMP	M Enabled	Datalogger_Tem		10 Hz	🔳 Cold jo	int		°C	- 0	50	
	BATT	M Enabled	Battery		1 Hz	⊥ Battery			V .1	5.0	15.0	
Customize Sensor	ECU_1	M Enabled	KTM_RPM		10 Hz	🖃 Engine	speed sensor		rpm	0	10000	
	Locu a	17 C 11 1	KTAL WELLCOD FL		10.11	w1.0				*1.00	200.0	

Calibration panel shows up:

• Press "Calibrate" button of distance potentiometer

Racing Data Power AIM Sportline Vorld Leader in Data Acquisition	a											
AIM Sportline	Transm	st [Receive	CAN-Net inf	fo Sma	setting	Set acquisition system time	•				
orld Leader in Data Acquisition	Current configuration											
	Installation name	Data logger type	Ecu	Lap Timer	Vehicle name	Available time	Time with GPS	Total frequency	Master f	requency	Expansions frequency	Tot. Expansions
	LOGGER_CONF	MXL PISTA	KTM - X-BOW	by GPS	READ	3.42.47 (h.m.s)	2.27.06 (h.m.s)	311 (Hz)	311 (Hz)		0 (Hz)	0
Analysis	Select configuration	Channels System confi	guration CAN-Evolaneione c	nonfigurator 1								
	Speed 1	Internets System contra	Sensor calibration									
	speed_1											
Download Data	Wheel circumference	(mm) 1666		Configuration name		5	System type					
	Pulses per wheel revo	lution 1		LOGGER_CONF			MXL PISTA					
Import SmortyCom			Sensors to autocalibrate									
microSD Data	Channel identifier	Enabled/disabled					Click here to autocalibra	te all	leasure unit	Low scale	e High	scale
	RPM	Disabled					sensors in the list	q	im	0	20000	
	SPD_1	Enabled	Channel n	ame	Sensor type	Status	Click here to calibrate	⊥ k	m/h .1	⊥ 0.0	250.0	
Device Configuration	CH_1	Enabled	Channel_3	Distance	potentiometer	Calibrated	Calibrate	- V	.1	I 0.0	5.0	
	CH_2	Enabled	LatAcc	Lateral a	ccelerometer	Calibrated	Calibrate	- V	.1	J 0.0	5.0	
	CH_3	Enabled						_ n	im .1	<u>- 0.0</u>	5.0	
Device Info	CH_4	Enabled						- v	.1	⊥ 0.0	5.0	
[]	CH_5	Enabled						- PV	.1	- 0.0	5.0	
	CH_6	Enabled	Sensors to calibrate					- v	.1	≥ 0.0	5.0	
<u>O</u> nline	CH_7	Enabled	Channel n	ame	Sensor type	Status	Click here to calibrate	- · ·	.1	- 0.0	5.0	
[]	CH_8	M Enabled						- V	.1	. 10.0	5.0	
	CALC_GEAR	Disabled						#		0	9	
Device Calibration	ACC_1	Enabled						g	.01	-3.00	3.00	
[]	LOG_IMP	Enabled								- 0	50	
	BATT	Enabled						V	1	5.0	15.0	
Customize Sensor	ECU 2	Enabled						q	m m/b 1	100	10000	
	ECU 2	Enabled						K	n/n .1	× 0.0	300.0	
	ECU A	Enabled		/	Transmit calibration		ancel	K	n/n .1	× 0.0	300.0	
	ECU 5	Fnabled	KTM WH SPD PP		10 Hz	* Speed repro	r		n/h 1	100	300.0	
Language	1000_0	is chooled	KTW_WH_SFD_KK		10 Hz	Throttle nori	, ition sensor	N 00	1	0.0	105.0	



Once the calibration over potentiometer status will be red and turn to "Calibrated":

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





5 Software setup – steering angle

Once the potentiometer installed it is necessary to load it in the configuration of its logger and then calibrate/auto calibrate it.

5.1 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.





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: "Angle" (2)
- Sensor: "Angular Pot. Calib" (**3** this implies that the potentiometer will be calibrated as shown in the following pages)
- Fill in the other fields
- Fill "Total Potentiometer travel" box with the potentiometer travel in degrees: 180° (4)
- Click "Save"

RaceStudio	3 3.08.06	5	3 EB 🗉 🖨								
AII MXL2 0)3 ×			-							
Save	Save As		Close Transmit								
Channels	ECU Stream	CAN	I2 Stream Math Channels	Paramet	ers Shift Lights	and Ala	rms Display	SmartyCam Strea	am CAN Expa	ansions	
	ID		Name	Functio	n	Sens	or	Unit	Freq F	arameters	
	RPM	☑	RPM	RPM	🗠 Channel Settings				×	16000 ; factor: /1 ;	
	Spd1	☑	Speed1	Vehicle S	Name	line -	Channel05			el: 1600 ; pulses: 1 ;	
	Spd2	☑	Speed2	Vehicle S	Function	2	Angle		\$	el: 1600 ; pulses: 1 ;	
	Spd3	☑	Speed3	Vehicle S						el: 1600 ; pulses: 1 ;	
	Spd4	☑	Speed4	Vehicle S	Sensor	3	Angular Pot. Ca	alib	÷	el: 1600 ; pulses: 1 ;	
	Ch01	☑	Channel01	Voltage	Sampling Freque	ency	20 Hz		• •		
	Ch02	☑	Channel02	Voltage	Unit of Measure	ency	den		•	1	
	Ch03	☑	Channel03	Voltage	Display Provision		no docimal plac			1	
	Ch04	☑	Channel04	Voltage	Display Precision	Daramo	tor	.e	•	1	
	Ch05		Channel05	Voltage	Poleniiomeier	ratame	101				
	Ch06	☑	Channel06	Position	Total p	otentio	meter travel	[deg] 180	4	travel: 50 ;	
	Ch07	☑	Channel07	Voltage							
	Ch08	☑	Channel08	Voltage							
	AccX		AccelerometerX	Inline Acc							
	AccY	☑	AccelerometerY	Lateral Ac				Save	Cancel	1	
	AccZ		AccelerometerZ	Vertical Ad						J	
	GyrX	☑	GyroX	Ang Veloc	ity	AiM Int	ernal Gyro	deg/s	20 Hz		
	GyrY		GyroY	Ang Veloc	ity	AiM Int	ernal Gyro	deg/s	20 Hz		
	GyrZ	☑	GyroZ	Ang Veloc	ity	AiM Int	ernal Gyro	deg/s	20 Hz		
	Spd		GPS Speed	Vehicle Sp	bd	AiM GF	'S	km/h 0.1	10 Hz		
	OdD	☑	Odometer	Odometer	Total	Aim OE	00	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.

RaceStudio	3 3.08.06							
*		5	ኔ 🖽 🖆 🖨					<u></u>
All MXL2 (03 ≫							
Save	Save As		Close Transmit					
Channels	ECU Stream	CAN	I2 Stream Math Channels	Parameters Shift Lights	and Alarms Display Sma	artyCam Stre	am CAN E	Expansions
	ID	\checkmark	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	☑	Channel01	Voltage	Generic 0-5 V	mV	20 Hz	
	Ch02	✓	Channel02	Voltage	Generic 0-5 V	mV	20 Hz	
	Ch03	☑	Channel03	Voltage	Generic 0-5 V	mV	20 Hz	
	Ch04	\checkmark	Channel04	Voltage	Generic 0-5 V	mV	20 Hz	
	Ch05	☑	Channel05	Angle	Angular Pot. Calib	deg	20 Hz	max travel: 180 ;
	Ch06	☑	Channel06	Position	Position Pot. AutoCal	mm	20 Hz	max travel: 50 ;
	Ch07	\checkmark	Channel07	Voltage	Generic 0-5 V	mV	20 Hz	
	Ch08	☑	Channel08	Voltage	Generic 0-5 V	mV	20 Hz	
	AccX	☑	AccelerometerX	Inline Accel	AiM Internal Accelerometer	g 0.01	20 Hz	
	AccY	✓	AccelerometerY	Lateral Accel	AiM Internal Accelerometer	g 0.01	20 Hz	
	AccZ	☑	AccelerometerZ	Vertical Accel	AiM Internal Accelerometer	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	\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:

- enter "All" layer and press "Device" (1)
- select the logger in the example MXL2 ID 410 (2)
- in "Live Measures" layer, keeping the potentiometer in its zero position, select the channel where the potentiometer has been set in the example channel 5 (**3**)
- press "Calibrate" (4)

🕋 RaceStudio3 3.08.06								x
* 🚣 🍄 🔂 🖽 🗳	0					((:-	😤 🐠	0
All MXL2 03 🕷								
	Live Measures Down	hand Dramad's		1	MXL2 ID 410			
All Configurations	Start Live Measures	Auto Calibrate	Calibrate S	Start Re	ecording mV Values			
Devices (4)	Lap Time	0:00.000	(0)		Logger Temperature	28.0	с	*
	External Voltage	12	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	5	mV		Channel02	28	mV	
	Channel03	29	mV		Channel04	33	mV	
	Channel05	-90	deg	Ø	Channel06	0	mm	
	Channel07	30	mV		Channel08	31	mV	н
	AccelerometerX	0.00	g		AccelerometerY	0.00	g	
	AccelerometerZ	0.00	g		GyroX	0.0	deg/s	
	GyroY	0.0	deg/s		GyroZ	0.0	deg/s	
	SM_RPM		rpm		SM_PPS		%	
	SM_PEDAL_ANGLE		%		SM_WHSPD_FL		km/h	
Connected Devices	SM_WHSPD_FR		km/h		SM_WHSPD_RL		km/h	
C MXL2 ID 410	SM_WHSPD_RR		km/h		SM_VEH_SPEED		km/h	
AIM-WIFI: No devices in view.	SM_ECT		С		SM_OIL_T		С	
	SM_OIL_P		bar		SM_STEERANGLE		deg	
	SM_STEERSPEED		deg/s		SM_BRAKE_SW		#	
	SM_GEAR	-	gear		SM_FUEL_LEVEL		I.	
	SM_KICKDOWN		#		SM_ATM_PRESS		bar	
Cestino	SM FUEL TEMP		c		SM ENGINE TEMP		C.	-



5.2 Setup with Race Studio 2

To load the potentiometer in AiM logger configuration:

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



- click out of the cell
- transmit the configuration to the logger pressing "Transmit" on the software top keyboard.



To calibrate the potentiometer:

• Press "Device Calibration"

Studio 2.55.44											
levice Configuration Download	Data Import SmartyCam	Data Analysis Device	e Info Online Devic	ce Calibration Customize	e Sensor Language ?						
	🚟 System manager										
Racing Data Power	Transm	u 🔒	Receive	CAN-Net info	Smar	yCam Functions setting	Set acquistion system time	•			
AIM Sportline	Current configuration										
Vorld Leader in Data Acquisition	Installation name	Data logger type	Ecu	Lap Timer	Vehicle name	Available time	Time with GPS	Total frequency	Master frequency	Expansions frequency	Tot. Expansions
	LOGGER_CONF	MXL PISTA	None - None	by GPS	READ	9.32.39 (h.m.s)	4.06.35 (h.m.s)	121 (Hz)	121 (Hz)	0 (Hz)	0
Analysis	Select configuration (Speed_1	Channels System configur	ration CAN-Expansions	configurator							
Download Data	Wheel droumference	(mm) 1666									
/	Pulses per wheel revo	Auton 1									
Import SmartyCam	Pulses per wheel revo	Enabled/disabled	Channel name		Sampling fr	quency Sensor type		Меази	irc unit Low s	icale High	n scale
Import SmartyCam microSD Data	Pulses per wheel revo Channel identifier RPM	Enabled/disabled	Channel name Engine		Sampling fr 10 Hz	quency Sensor type Engine revolu	tion speed	Measu	irc unit Low s	icale High 2000	h scale 0
Import SmartyCam microSD Data	Pulses per wheel revo Channel identifier RPM SPD_1	Enabled/disabled	Channel name Engine Speed_1		Sampling fr 10 Hz 10 Hz	quency Sensor type Engine revolu	tion speed	Measu rpm I km/h	rrc unit Low s 0 .1 ■ 0.0	icole Higi 2000 250.0	h scale 0
Import SmartyCam microSU Data	Pulses per wheel revo Channel identifier RPM SPD_1 CH_1	Enabled/disabled	Channel name Engine Speed_1 Channel_1		Sampling fr 10 Hz 10 Hz 10 Hz	equency Sensor type Engine revolu Speed Generic linear	tion speed 0-5 V	Mcasu rpm km/h	rrc unit Low s 0 .1 ¥ 0.0 ¥ 0.0	icale High 2000 250.0 5.0	h scale 0
Import SmartyCam microSU Data	Pulses per wheel revo Channel identifier RPM SPD_1 CH_1 CH_2	Enabled/disabled	Channel name Engine Speed_1 Channel_1 Channel_2		Sampling fr 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz	quency Sensor type Engine revolu Speed Generic linear Generic linear	tion speed 0-5 V 0-5 V	Measu rpm ✓ km/h ✓ 1 ✓ 1	rrc unit Low s 0 .1 ¥ 0.0 ¥ 0.0 ¥ 0.0	icale High 2000 250.0 5.0 5.0	n scale O
Import SmartyCam microSD Data	Pulses per wheel revo Channel identifier RPM SPD_1 CH_1 CH_2 CH_2 CH_3	Enabled/disabled	Channel name Engine Speed_1 Channel_1 Channel_2 Channel_3		Sampling fr 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz	squency Sensor type Engine revolu Speed Generic linear Generic linear Mid zero pote	tion speed 0-5 V 0-5 V o-5 V	Measu rpm ✓ km/h ✓ 1 ✓ 1 ✓ 1 ✓ 1	Irc unit Low s 0 1 × 0.0 × 0.0 × 0.0 L × 0.0	cole High 2000 250.0 5.0 5.0 5.0	h scale 0 0
Import SmartyCam microSD Data	Pulses per wheel revo Channel identifier RPM SPD_1 CH_1 CH_2 CH_3 CH_4	Enabled/disabled Enabled	Channel name Engine Speed_1 Channel_1 Channel_2 Channel_3 Channel_4		Sampling fm 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz	rquency Sensor type Engine revolu Speed Generic linear Mid zero pote Generic linear	tion speed 0-5 V 0-5 V 0-5 V mtiometer 0-5 V	Measu pm V 1 V 1 V 1 V 1 V 1 V 1 V 1 V 1	rrc unit Low s 0 .1 ≤ 0.0 ≤ 0.0 1 ≤ 0.0 1 ≤ 0.0 ≤ 0.0	reale Higt 2000 250.0 5.0 5.0 5.0 5.0 5.0	n scale 0 0
Import SmartyCam microSD Data	Pulses per wheel revo Channel identifier RPM SPD_1 CH_1 CH_2 CH_2 CH_4 CH_5	Enabled/disabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled	Channel name Engine Speed_1 Channel_1 Channel_2 Channel_3 Channel_5		Sampling fm 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz	quency Sensor type Tengine revolu Speed Generic linear Mid zero pote Generic linear Generic linear Mid zero pote Generic linear	tion speed 0-5 V 0-5 V ntiometer 0-5 V 0-5 V	Mccsu rpm x km/h x V .1 y V .1 x Mm .1 x V .1 x V .1 x V .1 x V .1	rrc unit Low s 0 .1 ≤ 0.0 ≤ 0.0 ≤ 0.0 L ≤ 0.0 ≤ 0.0 ≤ 0.0 ≤ 0.0	xcolc Higg 2000 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	n scale 0 0
Import SmartyCam microSU Data	Pulses per wheel revo Channel identifier RPM SPD_1 CH_2 CH_2 CH_3 CH_4 CH_5 CH_6	Enabled/disabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled	Channel name Engine Speed_1 Channel_1 Channel_2 Channel_3 Channel_5 Channel_6		Sampling fm 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz	quency Sensor type Engine revolu Engine revolu Speed Generic linear Generic linear Mid zero pote Generic linear Generic linear Generic linear Generic linear Generic linear Generic linear	tion speed 0-5 V 0-5 V ntiometer 0-5 V 0-5 V 0-5 V	Mcasu rpm ¥ km/h ¥ V .1 ¥ V .1 ¥ V .1 ¥ V .1 ¥ V .1 ¥ V .1	arc unit Low s 0 1 ≤ 0.0 ≤ 0.0 1 ⊂ 0.0 1 ⊂ 0.0 1 ⊂ 0.0 ≤ 0.0 ≤ 0.0 ≤ 0.0	ceale High 20000 250, Å 5,0 5,0 5,0 5,0 5,0 5,0 5,0 5,0 5,0	n scale 0 0
Import SmartyCam microSU Data	Pulses per wheel revo Channel identifier RPM SPD_1 CH_3 CH_4 CH_5 CH_6 CH_6 CH_7	Enabled/disabled Enabled Ena	Channel name Engine Speed_1 Channel_1 Channel_2 Channel_3 Channel_5 Channel_6 Channel_7		Sampling fr 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz	quency Sensor type Engine revolu Engine revolu Speed Generic linear Generic linear Generic linear Mid zero pote Generic linear Generic linear Generic linear Generic linear Generic linear Generic linear Generic linear Generic linear Generic linear	tion speed 0-5 V 0-5 V 0-5 V 0-5 V 0-5 V 0-5 V 0-5 V 0-5 V	Mcosu rpm ¥ km/h ¥ V.1 ¥ V.1 ¥ V.1 ¥ V.1 ¥ V.1 ¥ V.1 ¥ V.1 ¥ V.1	rrc unit Low s 0 1 ¥ 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	ecote Higg 2000 250,0 5,0 5,0 5,0 5,0 5,0 5,0 5,0 5,0 5,0	n scolc 0)
Import SmartyCam Device Configuration Device Info Quline	Pulses per wheel revo Channel identifier RPM SPD_1 CH_1 CH_2 CH_3 CH_4 CH_5 CH_6 CH_7 CH,8	Enabled/disabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled	Channel name Engine Speed_1 Channel_1 Channel_2 Channel_3 Channel_4 Channel_5 Channel_7 Channel_8		Sampling fn 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz 10 Hz	quency Sensor type Engine revolu Speed Sensor type Generic linear Generic Cinear Mid zero de Generic linear Generic Linear Generic linear	tion speed 0-5 V 0-5 V 0-5 V 0-5 V 0-5 V 0-5 V 0-5 V 0-5 V 0-5 V 0-5 V	Measu ipm x km/h y J y Mm J y J y J y J y J y J y J y J y J y J	rrc unit Low 3 0 1 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ecote High 2000 250, 5,0 5,0 5,0 5,0 5,0 5,0 5,0 5,0 5,0	n scole 0)
Import SmartyCam microSU Data	Pulses per wheel revo Channel identifier RPM SPD_1 CH_1 CH_2 CH_2 CH_3 CH_4 CH_5 CH_6 CH_7 CH_8 CALC GGAR	Enabled/disabled Fabiled	Channel name Engine Speed_1 Channel_1 Channel_2 Channel_4 Channel_5 Channel_6 Channel_7 Channel_8 Calculated_Gea		Sampling fr 10 Hz 10 Hz	iquency Sensor type Engine revolu Speed Generic linear Generic linear Generic linear Generic linear Generic linear Generic linear Generic linear Generic linear Calculated Ge	tion speed 0-5 V 0-5 V mitometer 0-5 V 0-5 V 0-5 V 0-5 V 0-5 V 0-5 V 0-5 V 3r	Mcasu rpm x km/h x V J v V J x V X X V X V X X V X X X V X X V X X V X X V X X V X X V X X X V X	rre unit Low 3 0 1 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ceele Higg 2000 250,/ 5,0 5,0 5,0 5,0 5,0 5,0 5,0 5,0 5,0 5,0	n scole 0 0
Import SmartyCam microSU Uata Device Configuration Device Info Quline Device Calibration	Pulses per wheel revo Channel identifier RPM SPD_1 CH_2 CH_3 CH_4 CH_5 CH_6 CH_7 CH_8 CAL_GEAR ACC_1	Enabled/disabled Finabled	Channel name Engine Speed_1 Channel_1 Channel_3 Channel_3 Channel_6 Channel_6 Channel_7 Channel_7 Channel_8 Calculated_Gea LatAcc		Sampling In 10 Hz 10 Hz	Senser type Senser type Senser type Senser type Senser type Generic linear	tion speed 0-5 V 0-5	Masu ipn = km/h = V 1 = 0 = 0 = 0	rrcunit Low 3	cale Higg 2000 2000 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	n scalc 0 0
Import SmartyCam microSU Data	Pulses per wheel revo Channel identifier RPM SPD_1 CH_1 CH_2 CH_2 CH_3 CH_4 CH_5 CH_6 CH_7 CH_6 CH_7 CH_8 CALC_GEAR ACC_1 LOG_TMP	Auton 1 Enabled/disabled F Enabled F Enab	Channel name Engine Speed_1 Channel_1 Channel_3 Channel_4 Channel_5 Channel_5 Channel_7 Channel_8 Calculated_Gea LatAcc Datalogger_Tem		Sampling fn 10 Hz 10 Hz	guency Senser type Engine revolu Speed Generic linear Generic linear Gene	tion speed 0-5 V 0-5 V	Masu ipm 2 km/h 2 y 1 2	rrc unit Low 3 0 1 < 0.0 1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	keale Hrigg 2000 2000 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	n scalc 0 0

Calibration panel shows up:

• Press "Calibrate" of "Mid zero potentiometer"

RaceStudio 2.55.44													- • X
File Device Configuration Download Da	ita Import SmartyCam	Data Analysis De	vice Info Online Dev	ce Calibration Customiz	e Sensor – Language	?							
	🦉 System manager												
Racing Data Power	Transi	nit	Receive	CAN-Net info	, S	nartyCam Functions setting	٢	Set acquisition system time					
AIM Sportline	Current configuration												
The World Leader in Data Acquisition	Installation name	Data logger type	Ecu	Lap Timer	Vehicle name	Available time		Time with GPS	Total frequen	ICY M	aster frequency	Expansions frequen	cy Tot. Expansions
	LOGGER_CONF	MXL PISTA	None - None	by GPS	READ	9.32.39 (h.m.s	s)	4.06.35 (h.m.s)	121 (Hz)	12	1 (Hz)	0 (Hz)	0
A <u>n</u> alysis	Select configuration	Channels System conf	iguration CAN-Expansion	configurator									
	Speed_1		Sensor calibration										
Download Data	Wheel circumference	(mm) 1666		Configuration name			Syste	em type					
	Pulses per wheel reve	olution 1		LOGGER_CONF			MXL	PISTA					
Import Smarty(am			Sensors to autocalibr	te									
microSD Data	Channel identifier	Enabled/disabled					[Click here to autocalibrate	al	Measure	unit Low s	scale I	High scale
	RPM	Enabled						sensors in the list		rpm	0	2	.0000
	SPD_1	I Enabled	Channel	name	Sensor type	Status	Cli	ck here to calibrate		⊥ km/h .1	± 0.0	2	:50.0
Device Configuration	CH1	Enabled	LatAcc	Lateral ac	celerometer	Calibrated		Calibrate		■ V .1	± 0.0	5	.0
	CH_2	Enabled								- V .I	- 0.0	3	
	CH_3	Enabled								-1 mm .1	- 0.0 - 1 0.0	2	
Tevice Inio	CH 5	Finabled								V.1	×1 0.0		50
	CHIG	Fnabled								• V 1	-100		
Dalina Onlina	CH 7	Enabled	Sensors to calibrate			1				- V.1	- 0.0	5	5.0
Se Sume	СН 8	Enabled	Channel	name	Sensor type	Status	Cli	ck here to calibrate		• V .1	- 0.0	5	5.0
	CALC_GEAR	□ Disabled	Channel_3	Mid zero	potentiometer	Default valu	e 📃	Calibrate		#	0	9	,
Device Calibration	ACC_1	Enabled								g .01	-3.00	3	3.00
	LOG_TMP	Enabled								°C	- 0	5	i0
	BATT	Enabled								V.1	5.0	1	.5.0
Customize Sensor													
									_				
				✓	Transmit calibration		Cance	el					
Language			L										
aim-sportline.com													
8 2007 AIN SRL ALL RIGHTS RESERVED													
VIA CAVALCANTI, 8 CERNUSCO SUL NAVIGLIO, HILAN - ITALY													



The software shows "Calibration panel" to learn the three calibration points; it shown also the related instructions:

• swerve to the left stop and press "Get raw value" corresponding to "High position"

	🚟 System manager											
Racing Data Power	Trans	nit	Receive	CAN-Net info	o Smart	yCam Functions setting	Set acquisition system	ime				
AIM Sportline	Current configuration											
rld Leader in Data Acquisition	Installation name	Data logger type	Ecu	Lap Timer	Vehicle name	Available time	Time with GPS	Total frequer	ncy Master	frequency	Expansions frequency	Tot. Expansions
	LOGGER_CONF	MAL MSTA	None - None	by GPS	READ	9.32.39 (n.m.s)	4.06.35 (n.m.s)	121 (HZ)	121 (Hz)	0 (HZ)	U
A <u>n</u> alysis	Select configuration	Channels System config	uration CAN-Exp	ansions configurator								
	Speed_1		Sensor calibration	Sensor calibration								
	Wheel circumference	(mm) 1666		Channel Name		Sensor type	Measure unit					
Download Data				Channel_3	Mid z	ero potentiometer	mm					
	Pulses per wheel rev	olution 1										
Import SmartyCam	Channellidentifier	Fachlad (disabled	Sensors to au			Raw data	Measure		Manager	1	1. 1.0.4	
microSD Data	DDM	Enabled/disabled			Current values	0	-100.0 al	brate all	measure unit	LOW SCa	2007	n scale
	SPD 1	Enabled		_					* km/h 1	100	250	0 1
Device Configuration	CH 1	Enabled	C C		Get Raw Value	4097	100			1 0.0	5.0	
-	CH 2	Enabled	LatAcc						• V.1	± 0.0	5.0	
	CH_3	Enabled		ZERO POSITION	Get Raw Value	1493	0		1 mm _1	그 0.0	5.0	
Device Info	CH_4	🗹 Enabled							. v .1	0.0 ك	5.0	
	CH_5	Enabled		LOW POSITION	Get Haw Value	U	-100		. V .1	1 0.0	5.0	
	CH_6	Enabled	Sensors to ca	How to o	alibrata unur consor				⊻ V .1	1 0.0	5.0	
Qnline	CH_7	Finabled			albiate your sensor				. V .1	± 0.0	5.0	
	CH_8	Enabled	Channel 3	 Maintain your sensor in button. 	n nign (or right) reterence pos	ation and click on <g< td=""><td>at raw value> proper</td><td></td><td>- V .1</td><td>± 0.0</td><td>5.0</td><td></td></g<>	at raw value> proper		- V .1	± 0.0	5.0	
	CALC_GEAR	Disabled	enonine_	2 - Maintain your sensor ir	n zero (or rest) reference pos	tion and click on <ge< td=""><td>t raw value>proper</td><td></td><td>#</td><td>0</td><td>9</td><td></td></ge<>	t raw value>proper		#	0	9	
Device Calibration	ACC_1	Enabled		button.					g .01	-3.00	3.00	
	LOG_TMP	Enabled		3 - Maintain your sensor in	n low (or left) reference positi	on and click on <get< td=""><td>raw value> proper</td><td></td><td>°C</td><td>10</td><td>50</td><td></td></get<>	raw value> proper		°C	1 0	50	
	BATT	Enabled		bollon.					V .1	5.0	15.0	
Customize Sensor				4 - Insert measure values	correspondent to above indi	cated reference posit	ons.					
				Click <ok> button.</ok>			~					
					V OK	Cancel						
Language		Į										
			e									
aim-sportline.com												
8 2007 AIM SRL												

- place the steering in its zero position and press "Get raw value" corresponding to "Zero position" (image below on the left)
- swerve to the right stop 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	100	HIGH POSITION	Get Raw Value	0	100
ZERO POSITION	Get Raw Value	2500	0	ZERO POSITION	Get Raw Value	2500	0
LOW POSITION	Get Raw Value	0	-100	LOW POSITION	Get Raw Value	0	-100



When calibration points have been learnt:

- manually fill in values corresponding to the three angular position: -90, 0 and 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"

	System manager												
Racing Data Power	Tran	amit (Receive	CAN-Net inf	o Sma	rtyCam Functions setting	🙆 s	et acquisition system time]				
AIM Sportline	Current configuration												
orld Leader in Data Acquisition	Installation name	Data logger type	Ecu	Lap Timer	Vehicle name	Available time	1	Time with GPS	Total frequent	cy N	laster frequency	Expansions frequency	Tot. Expansions
	LOGGER_CONF	MXL PISTA	None - None	by GPS	READ	9.32.39 (h.m.s)	4.06.35 (h.m.s)	121 (Hz)	1	21 (Hz)	0 (Hz)	0
Analysis		a	E LONE	e . 1									
	Select configuration	Channels System config	uration CAN-Expansions of	configurator									
	Speed_1		Sensor calibration										
Download Data	Wheel drcumfereno	e (mm) 1666		Carlosser			0						
			Configuration name System type										
	Puses per wheel re			LOGGER_CONF			MAL P	ISTA					
Import SmartyCam			Sensors to autocalibrate	,			_						
microSD Data	Channel identifier	Enabled/disabled						Click here to autocalibrat	e al	Measure	e unit Low s	scale Hig	h scale
	RPM	I Enabled						sensors in the list		rpm	0	200	0
	SPD_1	M Enabled	Channel n	ame	Sensor type	Status	Click	here to calibrate		⊥ km/h .1	± 0.0	250.	0
Device Configuration	CH_1	I Enabled	LatAcc	Lateral a	ccelerometer	erometer Calibrated	d Calibrate		- V.1	- 0.0	5.0		
	CH_2	I♥ Enabled								- V .I	- 0.0	5.0	
	CH_3	Enabled								mm 1	<u> </u>	5.0	
Device Info	CH_4	Enabled								- V.1	0.0	5.0	
	CH_S	M Enabled							_	· ∨ .1	± 0.0	5.0	
	CH_6	M Enabled	Sensors to calibrate							⊻ V .1	± 0.0	5.0	
Online	CH_/	M Enabled	Channel n	ame	Sensor type	Status	Click	here to calibrate		<u> </u>	0.0	5.0	
	CH_8	I Enabled	Channel_3	Mid zero	potentiometer	eter Calibrated	Calibrate		. V .1	-0.0	5.0		
	CALC_GEAR	Disabled								#	0	9	
Device Calibration	ACC_1	M Enabled								g .01	-3.00	3.00	
	LOG_TMP	I≊ Enabled								°C	- 0	50	
	BATT	I Enabled								V .1	5.0	15.0	
Customize Sensor						_							
								5					
				1	Transmit calibration		Cancel						
Language				MANU MANUAL MANUAL MANUAL MANUAL MANUAL MANU MANU MANU MANU MANU MANU MANU MANU	6		A. 28 N.I	-					



6 Dimensions, pinout and technical characteristics

The drawing below shows sensors dimensions in millimetres [inches].



With reference to the drawing above the table here below shows the proportional growth of "A", "B" and "C" dimensions.

Potentiometer travel (C)	"A" – Retracted mounting distance	"B" Sensor body length
50 mm (1.97")	198 mm (7.79″)	132 mm (5.19″)
75 mm (2.95")	223 mm (8.77″)	157 mm (6,18")
100 mm (3.93″)	248 mm (9.76″)	182 mm (7.16″)
150 mm (5.91″)	298 mm (11.73″)	232 mm (9.13″)



The potentiometer ends with a 4 pins Binder 719 male connector. The image below shows the connector from solder termination side.

4	, 1 	
3	2	

Binder connector pin	Function
1	Analog signal 0-5 V
2	GND
3	Not connected
4	Vreference (4.5V)

Car/Bike linear potentiometer technical characteristics are:

- Maximum supply voltage: 40 Vdc
- Resolution: essentially infinite
- Repeatability: \leq 0.01 mm
- Operational speed: 10 m/s max
- Mechanical life: >25 millions cycles
- Temperature range: from -40° to +125°
- Environmental sealing: IP65
- Independent linearity: $\leq \pm 0.5\%$
- Cable type: Raychem 55A 24 AWG
- Cable length: 450 mm
- Housing: Aluminium
- Spherical bearing: Ø5 mm



7 Extension cables

The potentiometer is sold with a 45 cm cable and standard lengths extension cables are available as optional; it is also possible to ask for specific length extension cables.

Extension cables part numbers change according to their length and to the device the sensor is to be connected to.

Extension cable for connection with:

- MGS
- MXS
- MXL2
- EVO5
- EVO4
- Channel Expansion
- MyChron Expansion

Part numbers:

V02PCB05BTXG – cable length: 500 mm V02PCB10BTXG – cable length: 1000 mm V02PCB15BTXG – cable length: 1500 mm V02PCB20BTXG – cable length: 2000 mm V02PCB25BTXG – cable length: 2500 mm V02PCB30BTXG – cable length: 3000 mm

Extension cable for connection with:

- MXL Strada
- MXL Pista
- MXL Pro05

Part numbers:

V02PCB05B – cable length: 500mm V02PCB10B – cable length: 1000mm V02PCB15B – cable length: 1500mm V02PCB20B – cable length: 2000mm V02PCB25B – cable length: 2500mm V02PCB30B – cable length: 3000mm



