

Race Studio 3


Configuring a TPS potentiometer with RS3

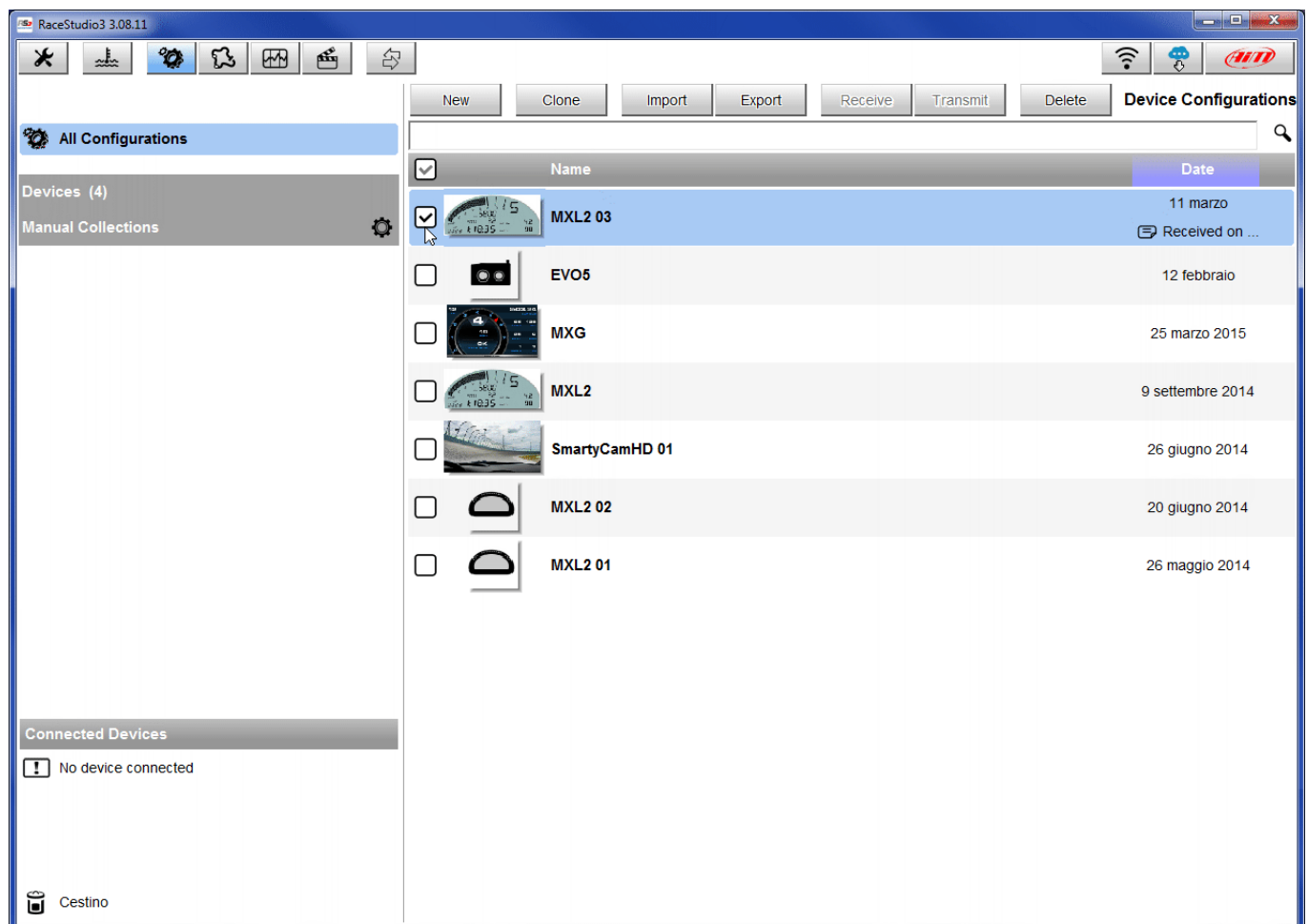
Question:

How do I configure the TPS potentiometer installed on my car/bike using RS3?

Answer:

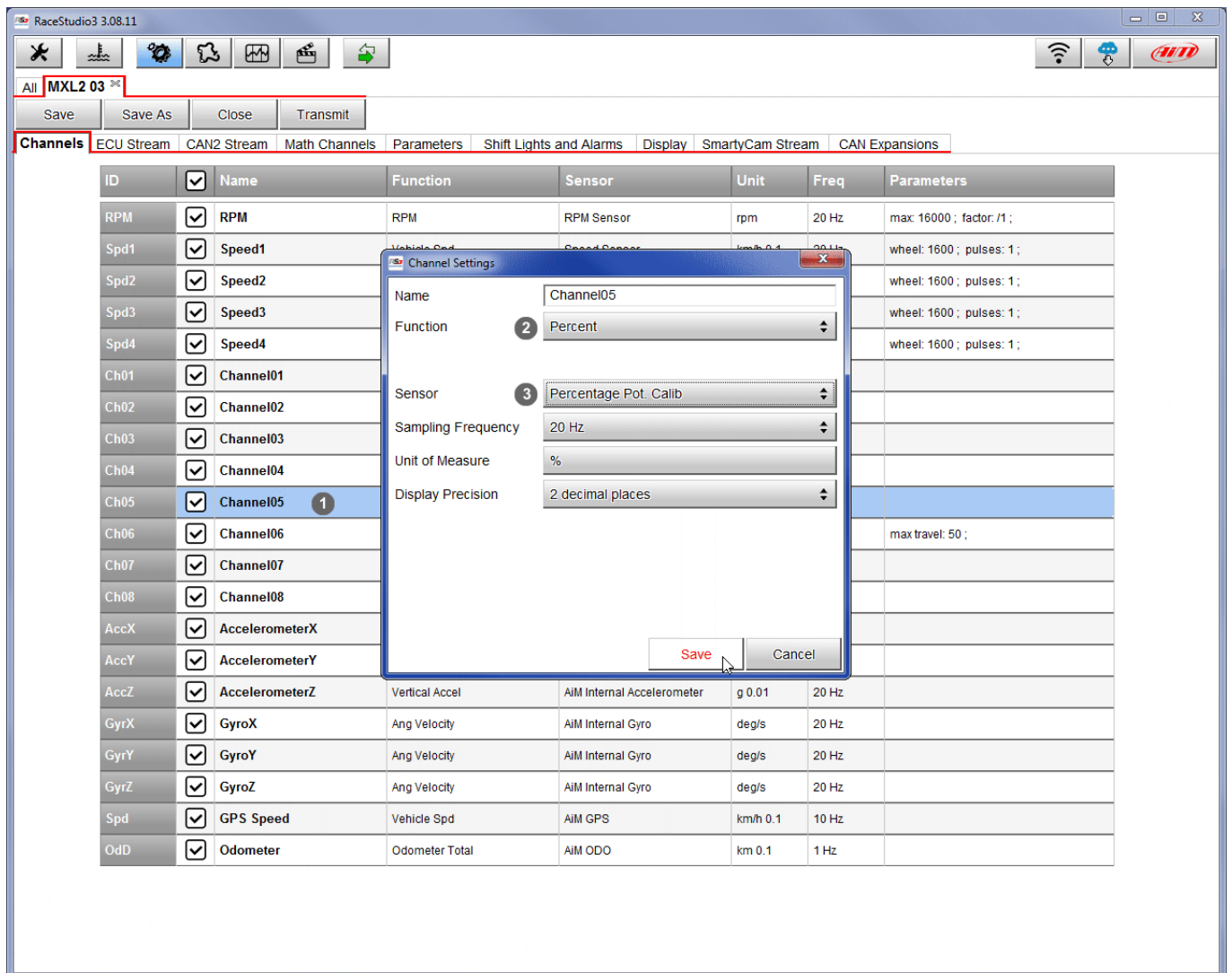
The TPS potentiometer is configurable using RS3 in the way shown here below:

- Run the software RS3.
- Click "Configuration" () and select the configuration you are going to load the sensor on.



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- 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; also "Position" and "Angle" function can be selected, but the potentiometer total motion must be known accurately, respectively in millimeters and in degrees).
- 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".



The screenshot shows the RaceStudio3 3.08.11 interface. The 'Channels' tab is selected, displaying a list of channels. Channel05 is highlighted with a red circle (1). The 'Channel Settings' dialog is open for Channel05, showing the following configuration:

- Name: Channel05
- Function: Percent (2)
- Sensor: Percentage Pot. Calib (3)
- Sampling Frequency: 20 Hz
- Unit of Measure: %
- Display Precision: 2 decimal places

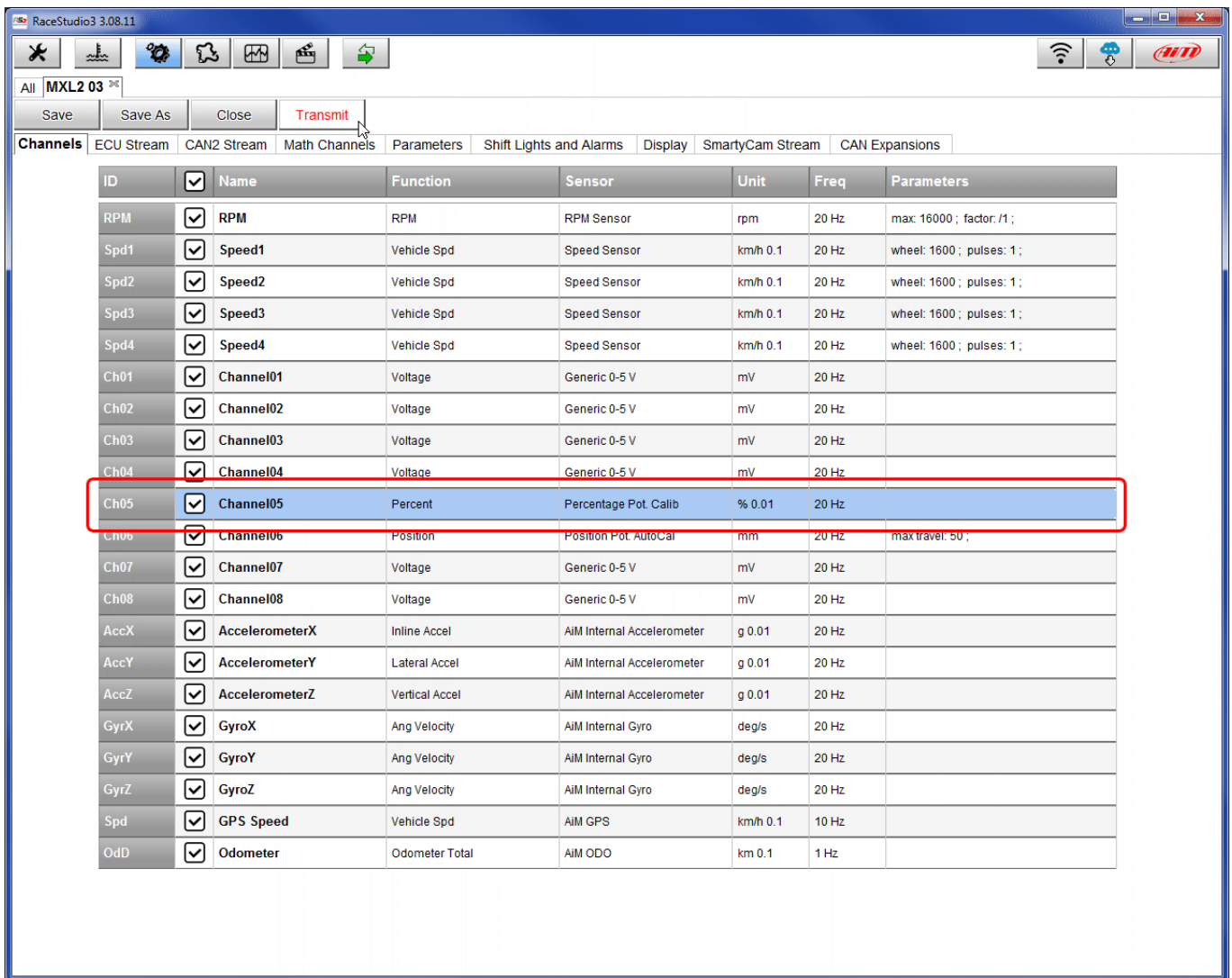
The 'Save' button is highlighted with a red circle (3).

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					wheel: 1600 ; pulses: 1 ;
Spd3	✓	Speed3					wheel: 1600 ; pulses: 1 ;
Spd4	✓	Speed4					wheel: 1600 ; pulses: 1 ;
Ch01	✓	Channel01					
Ch02	✓	Channel02					
Ch03	✓	Channel03					
Ch04	✓	Channel04					
Ch05	✓	Channel05					
Ch06	✓	Channel06					
Ch07	✓	Channel07					
Ch08	✓	Channel08					
AccX	✓	AccelerometerX					
AccY	✓	AccelerometerY					
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	✓	GPS Speed	Vehicle Spd	AIM GPS	km/h 0.1	10 Hz	
OdD	✓	Odometer	Odometer Total	AIM ODO	km 0.1	1 Hz	

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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.



The screenshot shows the RaceStudio3 3.08.11 interface. The top toolbar includes buttons for Save, Save As, Close, and Transmit. The 'Channels' tab is selected, displaying a table of channel configurations. The 'Transmit' button is highlighted in red. The table lists various channels, including RPM, Speed, Voltage, and Accelerometer channels. Channel05 is highlighted in blue and has a red box around it.

ID	<input checked="" type="checkbox"/>	Name	Function	Sensor	Unit	Freq	Parameters
RPM	<input checked="" type="checkbox"/>	RPM	RPM	RPM Sensor	rpm	20 Hz	max: 16000 ; factor: /1 ;
Spd1	<input checked="" type="checkbox"/>	Speed1	Vehicle Spd	Speed Sensor	km/h 0.1	20 Hz	wheel: 1600 ; pulses: 1 ;
Spd2	<input checked="" type="checkbox"/>	Speed2	Vehicle Spd	Speed Sensor	km/h 0.1	20 Hz	wheel: 1600 ; pulses: 1 ;
Spd3	<input checked="" type="checkbox"/>	Speed3	Vehicle Spd	Speed Sensor	km/h 0.1	20 Hz	wheel: 1600 ; pulses: 1 ;
Spd4	<input checked="" type="checkbox"/>	Speed4	Vehicle Spd	Speed Sensor	km/h 0.1	20 Hz	wheel: 1600 ; pulses: 1 ;
Ch01	<input checked="" type="checkbox"/>	Channel01	Voltage	Generic 0-5 V	mV	20 Hz	
Ch02	<input checked="" type="checkbox"/>	Channel02	Voltage	Generic 0-5 V	mV	20 Hz	
Ch03	<input checked="" type="checkbox"/>	Channel03	Voltage	Generic 0-5 V	mV	20 Hz	
Ch04	<input checked="" type="checkbox"/>	Channel04	Voltage	Generic 0-5 V	mV	20 Hz	
Ch05	<input checked="" type="checkbox"/>	Channel05	Percent	Percentage Pot. Calib	% 0.01	20 Hz	
Ch06	<input checked="" type="checkbox"/>	Channel06	Position	Position Pot. AutoCal	mm	20 Hz	max travel: 50 ;
Ch07	<input checked="" type="checkbox"/>	Channel07	Voltage	Generic 0-5 V	mV	20 Hz	
Ch08	<input checked="" type="checkbox"/>	Channel08	Voltage	Generic 0-5 V	mV	20 Hz	
AccX	<input checked="" type="checkbox"/>	AccelerometerX	Inline Accel	AIM Internal Accelerometer	g 0.01	20 Hz	
AccY	<input checked="" type="checkbox"/>	AccelerometerY	Lateral Accel	AIM Internal Accelerometer	g 0.01	20 Hz	
AccZ	<input checked="" type="checkbox"/>	AccelerometerZ	Vertical Accel	AIM Internal Accelerometer	g 0.01	20 Hz	
GyrX	<input checked="" type="checkbox"/>	GyroX	Ang Velocity	AIM Internal Gyro	deg/s	20 Hz	
GyrY	<input checked="" type="checkbox"/>	GyroY	Ang Velocity	AIM Internal Gyro	deg/s	20 Hz	
GyrZ	<input checked="" type="checkbox"/>	GyroZ	Ang Velocity	AIM Internal Gyro	deg/s	20 Hz	
Spd	<input checked="" type="checkbox"/>	GPS Speed	Vehicle Spd	AIM GPS	km/h 0.1	10 Hz	
OdD	<input checked="" type="checkbox"/>	Odometer	Odometer Total	AIM ODO	km 0.1	1 Hz	

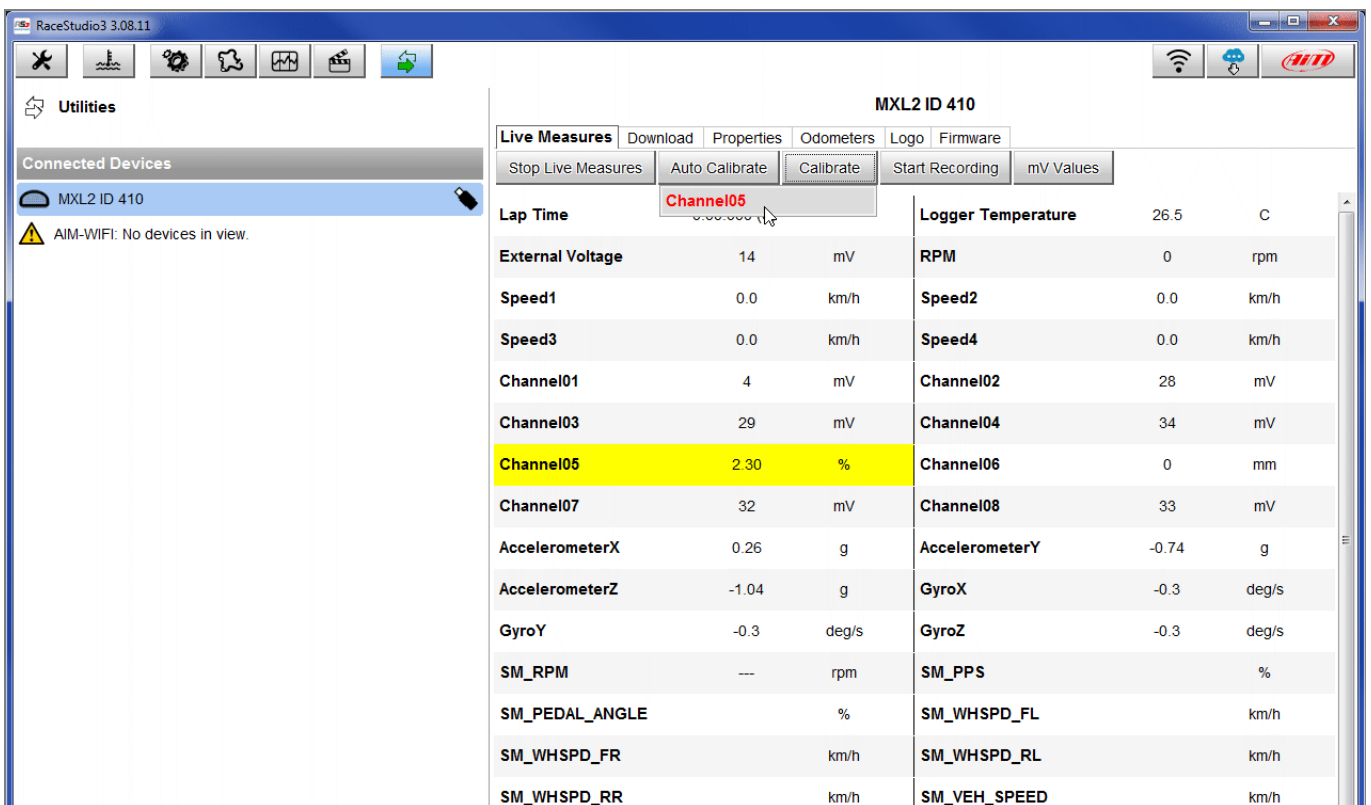
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To calibrate the potentiometer:

- Press "Device" (D) on the top keyboard.
- Select the configuration – in the example "MXL2 ID 410".

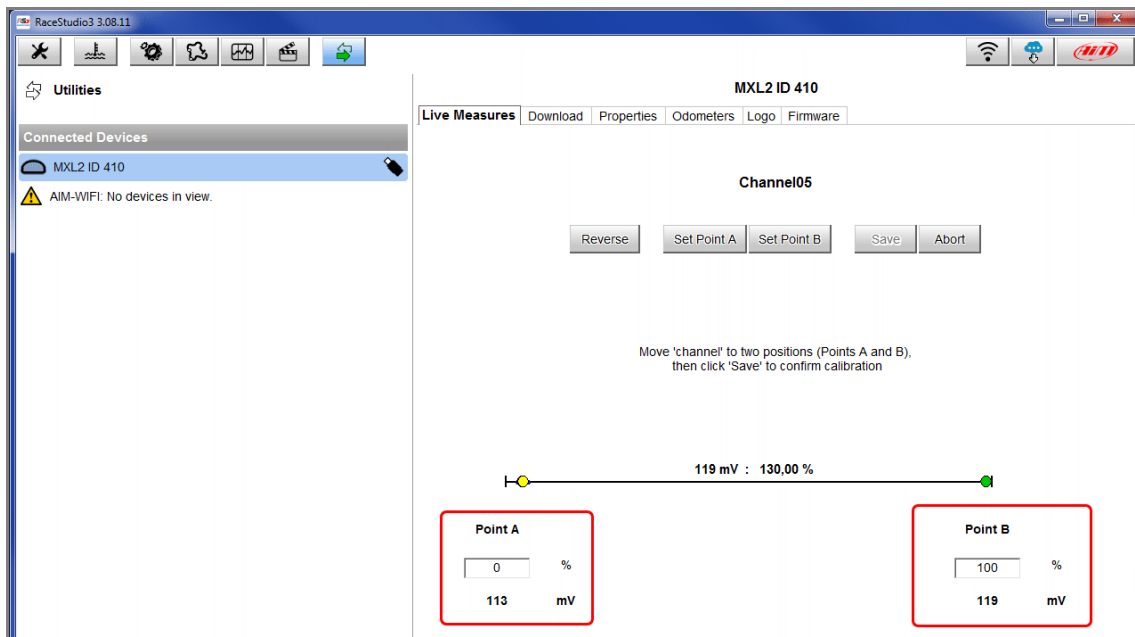


- Press "Calibrate".
- The system shows all channels to be calibrated: choose the one where the potentiometer has been set – in the example "Channel 5".



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



- 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".

