AiM Infotech

Pressure sensor
0-100 bar/0-1450 PSI

Release 1.00

This datasheet explains how to use 0-100 bar (0-1450 PSI) pressure sensor. This sensor comes with a connection kit including:

- 0-100 bar (0-1450 PSI) pressure sensor with 50 cm cable
- connection kit including:
    - two lock nuts
    - 2 nipples
    - 1 "T" brunch pipe female M10x1 thread

This sensor kit part number is: **X05SNP31100R**

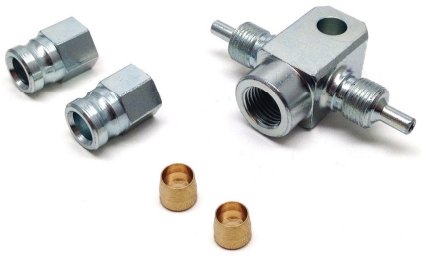
1 Introduction

AiM loggers can measure the pressure with a proper sensor. It needs a proper installation. This is why we suggest to address to a specialized workshop. Once the sensor installed it needs a software configuration that can be made using AiM Race Studio freely downloadable from download area of www.aim-sportline.com.

This sensor fits brake pressure measurement.

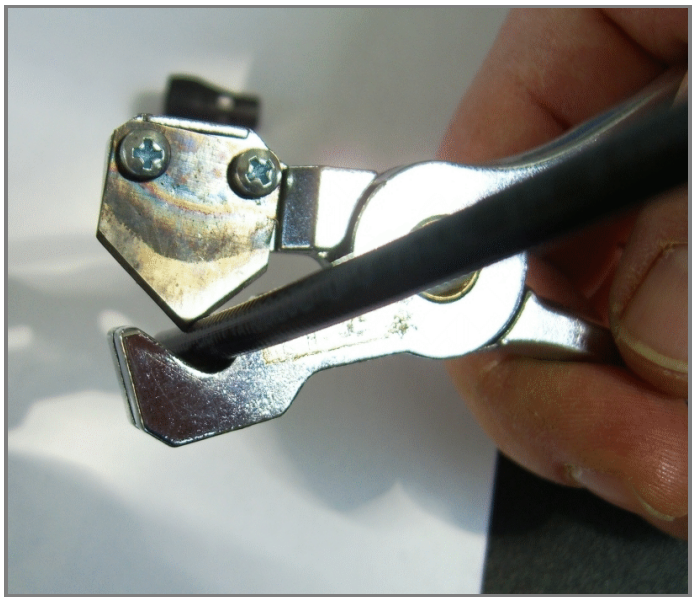
2 Installation

To correctly install 0-100 bar brake pressure sensor use the included connection kit shown here below.

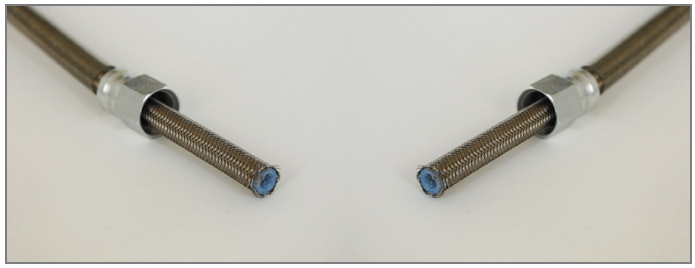


Please follow this procedure:

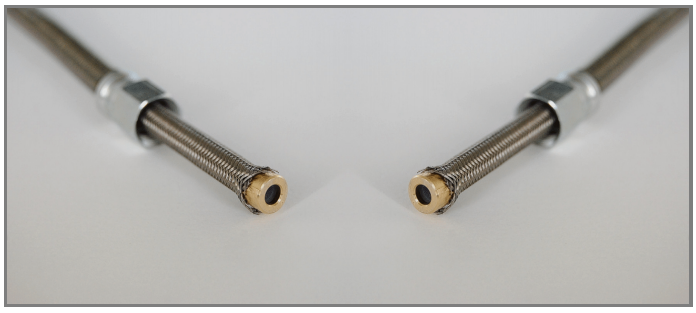
Cut the braking plant pipe in the point where you want to install the sensor and then repeat the operations here described on both edges of the pipe.



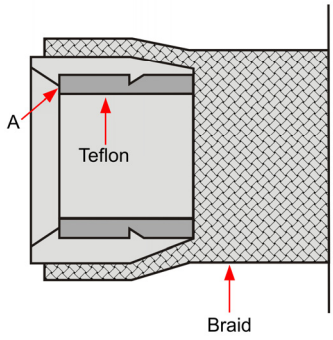
Insert the 2 locking nuts in the cut parts of the pipe.



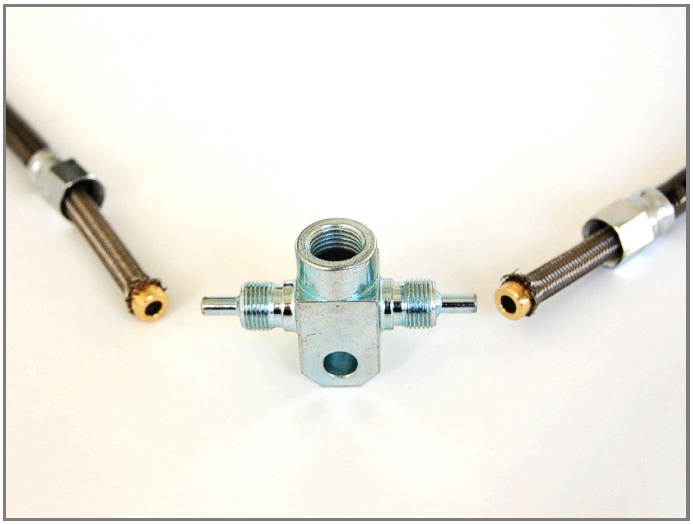
Insert the nipple under the metallic braid.



Press the nipple until the contact with the internal part of the pipe ("**A**") is complete and then cover it with the metallic braid.



Place the junction so to determine the desired sensor position before tightening. We suggest to make a reference mark.

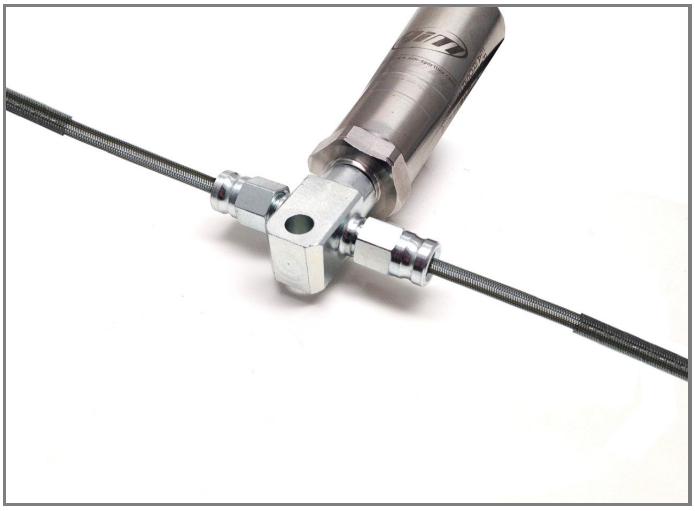


Tighten to 0,8 Kg (8 Nm).

Alternatively tighten the threads a quarter turn at a time until the right position is reached.

Please be careful: do not exceed 15 Nm

Install the sensor on the junction wrapping the thread with Teflon to guarantee its tightness.



Warning: once the installation is over ensure that the brake circuit is cleared and check its tightness.

3
Sensor configuration

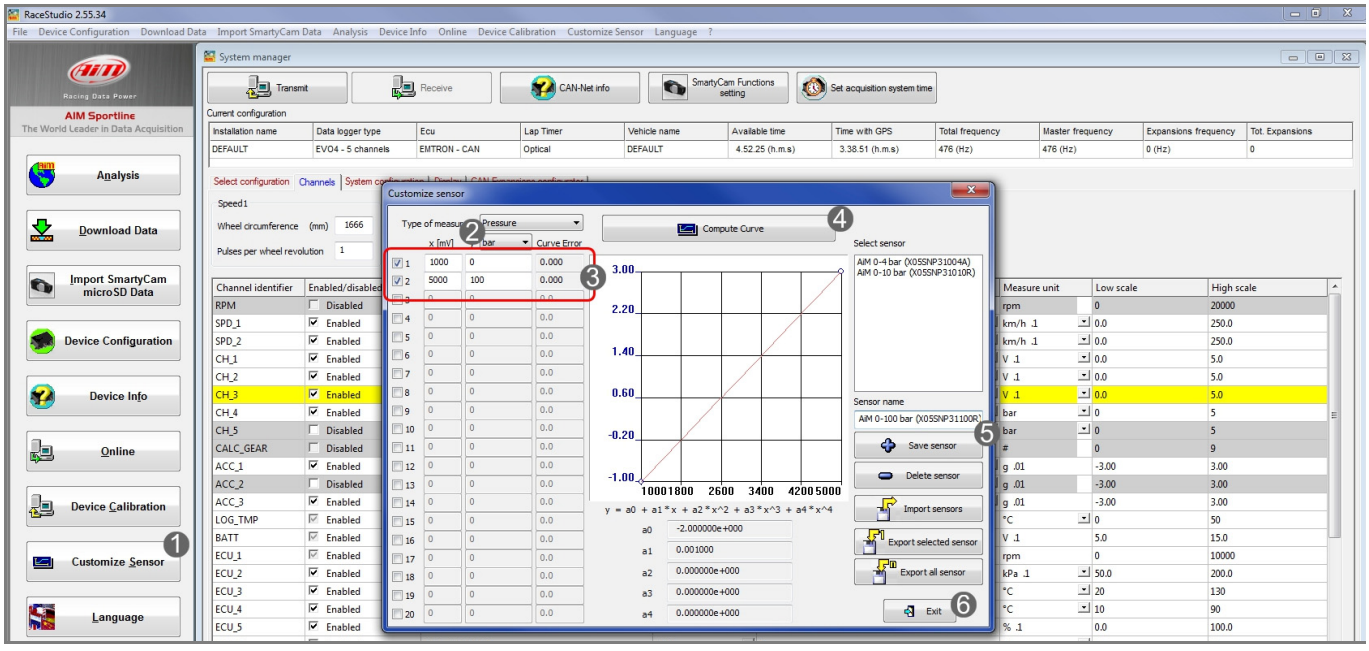
AiM logger can sample data sent by the sensor only if this last is physically connected to a channel of the logger previously set using AiM Race Studio software and the configuration is transmitted to the logger.

3.1
Configuration with Race Studio 2

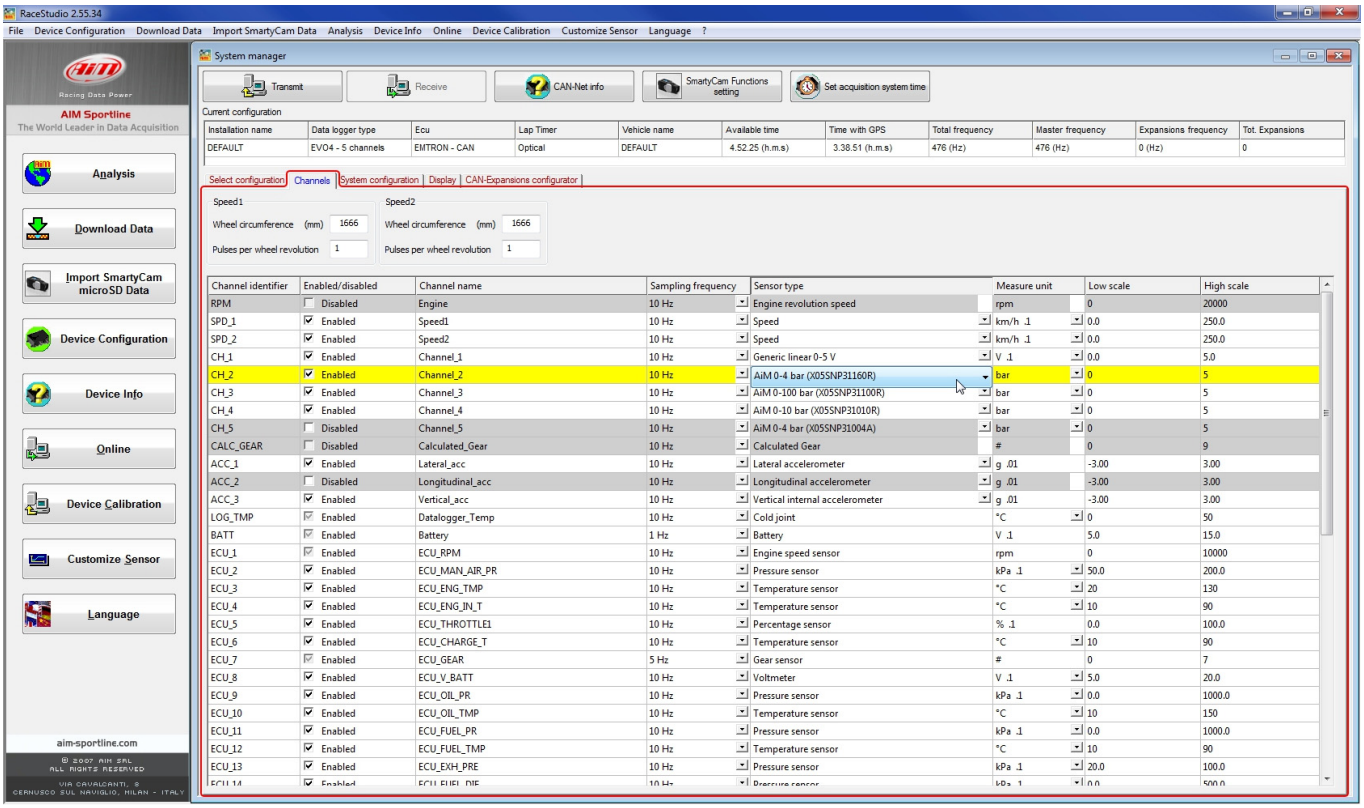
- run Race Studio 2 and select the logger the sensor is connected to;
- create a custom sensor pressing "Customize sensor" (**1**)
- select the type of measure (Pressure) and the unit of measure (bar) (**2**)
- complete the first two rows of the table on the left as follows (**3**):

X [Mv]	Y [Bar]
1000	0
5000	100

- press "Compute curve" (**4**), fill in sensor name and press "Save sensor" (**5**)
- premere "Exit" (**6**)



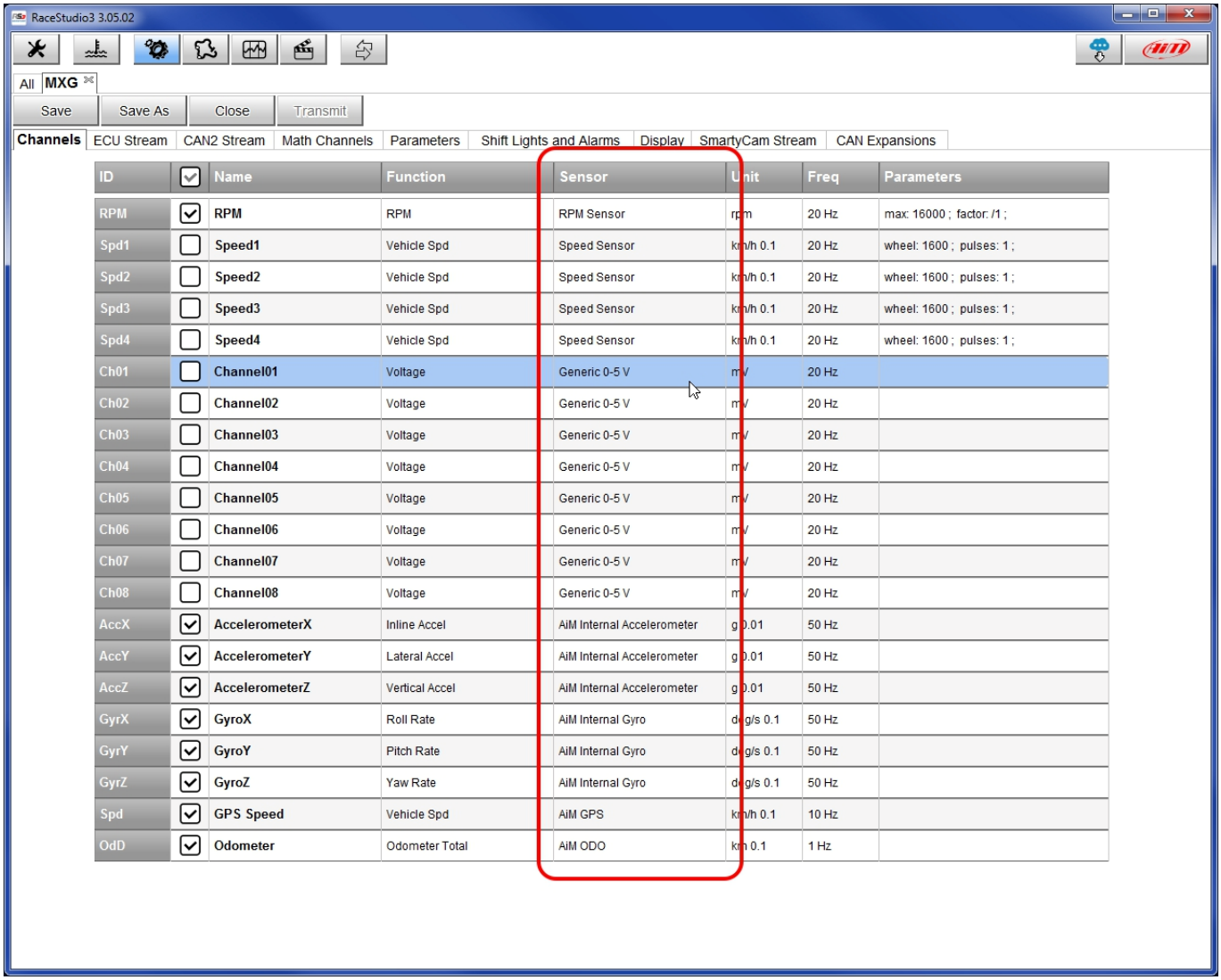
To set the sensor in the logger configuration select it in "Channels" layer as shown here below and press "Transmit".



Channel identifier	Enabled/disabled	Channel name	Sampling frequency	Sensor type	Measure unit	Low scale	High scale
RPM	Disabled	Engine	10 Hz	Engine revolution speed	rpm	0	20000
SPD_1	Enabled	Speed1	10 Hz	Speed	km/h .1	0.0	250.0
SPD_2	Enabled	Speed2	10 Hz	Speed	km/h .1	0.0	250.0
CH_1	Enabled	Channel_1	10 Hz	Generic linear 0-5 V	V .1	0.0	5.0
CH_2	Enabled	Channel_2	10 Hz	AiM 0-4 bar (X05SNP31160R)	bar	0	5
CH_3	Enabled	Channel_3	10 Hz	AiM 0-100 bar (X05SNP31100R)	bar	0	5
CH_4	Enabled	Channel_4	10 Hz	AiM 0-10 bar (X05SNP31010R)	bar	0	5
CH_5	Disabled	Channel_5	10 Hz	AiM 0-4 bar (X05SNP31004A)	bar	0	5
CALC_GEAR	Disabled	Calculated_Gear	10 Hz	Calculated Gear	#	0	9
ACC_1	Enabled	Lateral_acc	10 Hz	Lateral accelerometer	g .01	-3.00	3.00
ACC_2	Disabled	Longitudinal_acc	10 Hz	Longitudinal accelerometer	g .01	-3.00	3.00
ACC_3	Enabled	Vertical_acc	10 Hz	Vertical internal accelerometer	g .01	-3.00	3.00
LOG_TMP	Enabled	Datalogger_Temp	10 Hz	Cold joint	°C	0	50
BATT	Enabled	Battery	1 Hz	Battery	V .1	5.0	15.0
ECU_1	Enabled	ECU_RPM	10 Hz	Engine speed sensor	rpm	0	10000
ECU_2	Enabled	ECU_MAN_AIR_PR	10 Hz	Pressure sensor	kPa .1	50.0	200.0
ECU_3	Enabled	ECU_ENG_TMP	10 Hz	Temperature sensor	°C	20	130
ECU_4	Enabled	ECU_ENG_IN_T	10 Hz	Temperature sensor	°C	10	90
ECU_5	Enabled	ECU_THROTTLE1	10 Hz	Percentage sensor	% .1	0.0	100.0
ECU_6	Enabled	ECU_CHARGE_T	10 Hz	Temperature sensor	°C	10	90
ECU_7	Enabled	ECU_GEAR	5 Hz	Gear sensor	#	0	7
ECU_8	Enabled	ECU_V_BATT	10 Hz	Voltmeter	V .1	5.0	20.0
ECU_9	Enabled	ECU_OIL_PR	10 Hz	Pressure sensor	kPa .1	0.0	1000.0
ECU_10	Enabled	ECU_OIL_TMP	10 Hz	Temperature sensor	°C	10	150
ECU_11	Enabled	ECU_FUEL_PR	10 Hz	Pressure sensor	kPa .1	0.0	1000.0
ECU_12	Enabled	ECU_FUEL_TMP	10 Hz	Temperature sensor	°C	10	90
ECU_13	Enabled	ECU_EXH_PRE	10 Hz	Pressure sensor	kPa .1	20.0	100.0

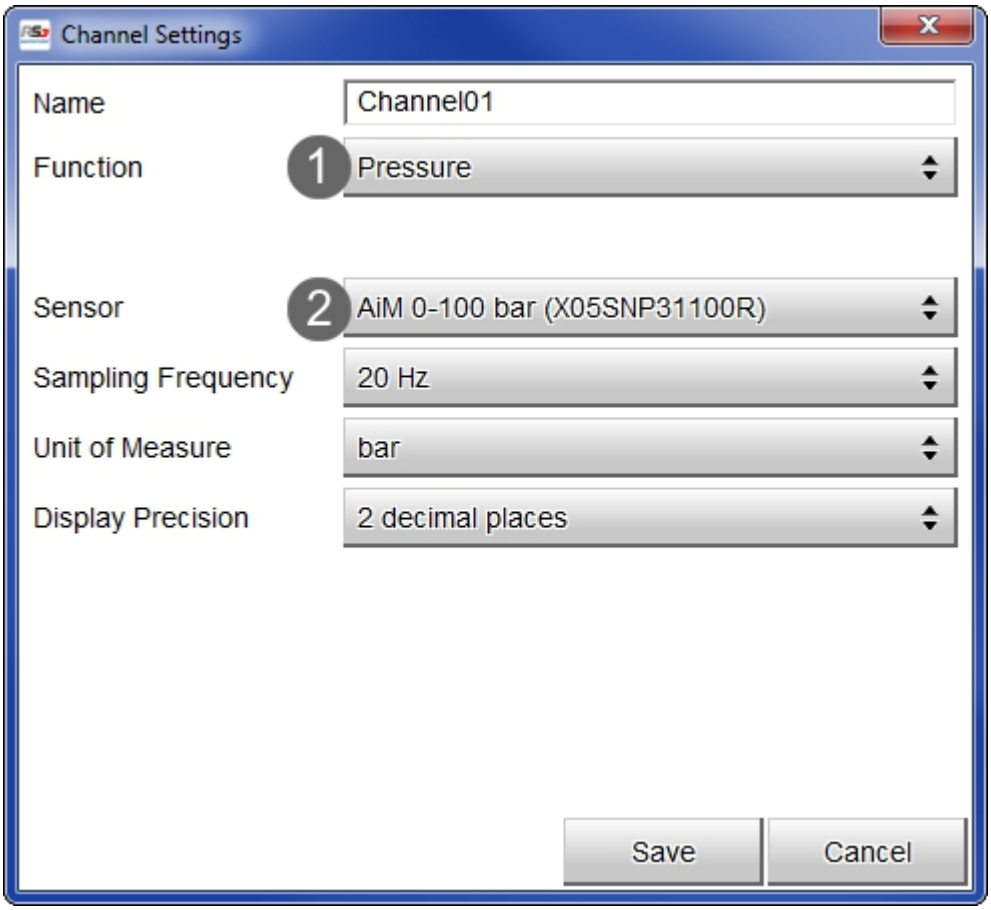
3.2
Configuration with Race Studio 3

- run Race Studio 3 and select the logger the sensor is connected to;
- select the configuration where the sensor is to be set or create a new one pressing “New” and select “Channel” layer shown here below;
- select the channel where to set the sensor and click on the related cell of "Sensor" column;



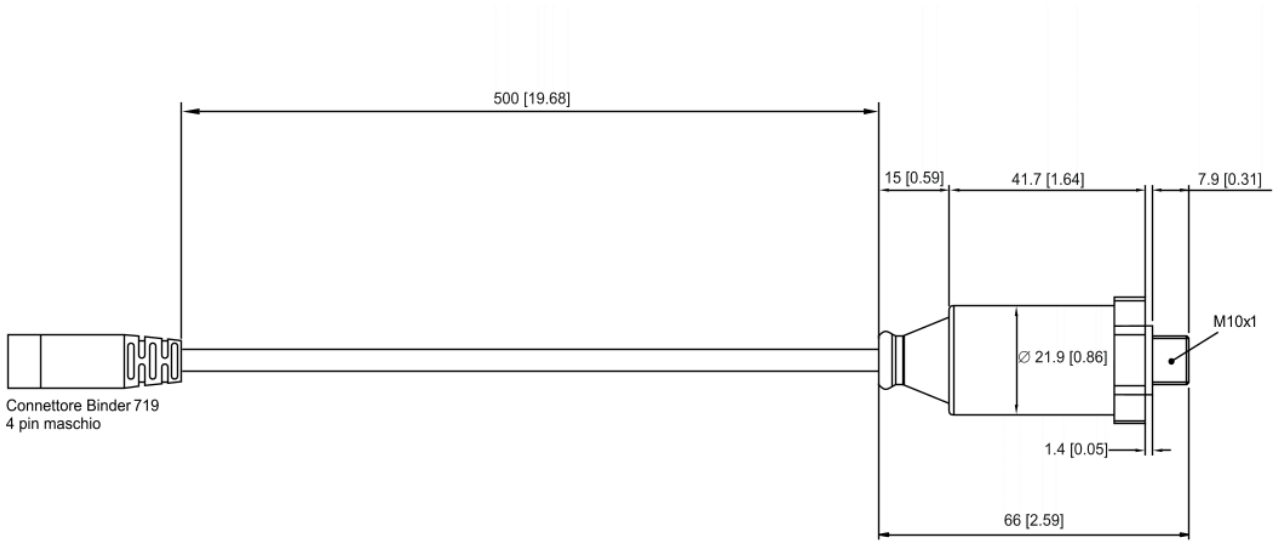
ID		Name	Function	Sensor	Unit	Freq	Parameters
RPM	☑	RPM	RPM	RPM Sensor	rpm	20 Hz	max: 16000 ; factor: /1 ;
Spd1	☐	Speed1	Vehicle Spd	Speed Sensor	km/h 0.1	20 Hz	wheel: 1600 ; pulses: 1 ;
Spd2	☐	Speed2	Vehicle Spd	Speed Sensor	km/h 0.1	20 Hz	wheel: 1600 ; pulses: 1 ;
Spd3	☐	Speed3	Vehicle Spd	Speed Sensor	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	☐	Channel02	Voltage	Generic 0-5 V	mV	20 Hz	
Ch03	☐	Channel03	Voltage	Generic 0-5 V	mV	20 Hz	
Ch04	☐	Channel04	Voltage	Generic 0-5 V	mV	20 Hz	
Ch05	☐	Channel05	Voltage	Generic 0-5 V	mV	20 Hz	
Ch06	☐	Channel06	Voltage	Generic 0-5 V	mV	20 Hz	
Ch07	☐	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	50 Hz	
AccY	☑	AccelerometerY	Lateral Accel	AiM Internal Accelerometer	g 0.01	50 Hz	
AccZ	☑	AccelerometerZ	Vertical Accel	AiM Internal Accelerometer	g 0.01	50 Hz	
GyrX	☑	GyroX	Roll Rate	AiM Internal Gyro	deg/s 0.1	50 Hz	
GyrY	☑	GyroY	Pitch Rate	AiM Internal Gyro	deg/s 0.1	50 Hz	
GyrZ	☑	GyroZ	Yaw Rate	AiM Internal Gyro	deg/s 0.1	50 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	

- a configuration panel shows up
- select: "Pressure" function as well as the kind of pressure to sample (**1**) among:
    - Oil pressure
    - Brake Pressure
    - Wheel Brake Pressure
    - Pressure
- select the sensor "AiM 0-100 bar (X05SNP31100R)" (**2**) press "Save" and transmit the configuration to the logger pressing "Transmit".

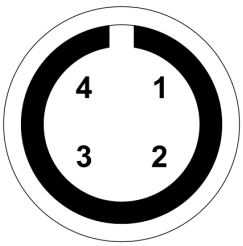


4
Dimensions, pinout and technical characteristics

The drawing here below shows sensor dimensions in millimetres [inches].



The image here below shows 4 pins Binder 719 male connector pinout solder termination view.



Pin	Function	Cable colour
1	Analog signal 0-500 mV	White
2	GND	Black
3	+Vb	Red
4	Not connected	

The table here below shows the sensor electrical characteristics.

Technical characteristics	**Value**
Accuracy	<+/1 0.5%
Output signal	1.5 V
Temperature working range	from -40° to 125°
Sealing	IP66
Excitation	10-32 VDC; 1-5 V
Consumption	<10 mA
Housing	304 stainless steel
Weight	60g
Sensor thread	M10*1
Cable length	50 mm

4
Extension cables

The sensor is sold with a 50 cm cable. Standard and custom length extension cables are available; standard length are: 0,5 m, 1m and 1,5 m.

Product part number changes according to their length and to the product the sensor is to be connected to.

Extension cable for connection to:
- Channel Expansion
- EVO4.

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

Extension cable for connection to:
- MXG
- MXS
- MXL2
- MXL Strada/Pista/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