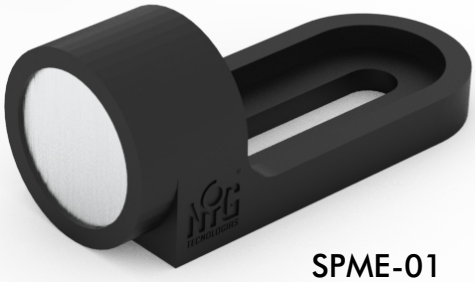
UNIVERSAL SENSORS.

Magnetic linear pedal position sensor Brake / Accelerator SPME-01 / SPMR-01

Version 1.0



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Introduction.

This universal sensor is developed to easily measure the % of pedal angle. The sensor delivers a signal in mV, and then this data must be mapped to 0% to 100% of the pedal. The relaxation or maximum acceleration mV point depends on the installation position.

How does this sensor benefit me?

We must know that this sensor can be used on the brake and accelerator pedal.
In the accelerator and brake we can see the modulation of the pilots in the pedals in certain maneuvers, as well as the key points to brake and accelerate. Engineers will look for higher percentage throttle than 100%, as long as you don't lose traction. They will also look for the minimum time spent to brake.

Description of Parts.

The kit is made up of a magnetic emitter part and a receiver sensor part.
The emitter have a neodymium magnet component.
The receiver is made with a linear hall sensor, the amount of mV at its output will vary depending on the proximity to the face of emiter magnetic component.
The receiver is delivered with a 20cm long cable with a connector of your choice. That is why our sensors are universal, you can use it in any data acquisition.

SPMR-01: Linear magnetic receiver model. Connector and cable length is customizable.
SPME-01: Name of this model of emiter magnetic sensor part.
1- Linear hall magnetic receiver sensor housing printed in 3d uv resin.
2- Receiver sensor connector, customer choice.
3- Receiver sensor wire, the length is at the customer's choice.
4- Sensing face of the sensor. Coated with epoxy resin. Internal hardware with IP 68 degree of protection.
5- Magnetic face of the emitter. Neodymium magnet.
6- Emitter housing printed in 3d uv resin.
7- Kit per receptor and emitter of M6X10 Allen screw, washers and nuts.

Electrical characteristics.

ABSOLUTE MAXIMUN RATINGS. (Note 1)

Parameter	Symbol	Value	Unit
Supply voltage	Vcc	8	V
Output current	Io	10	mA
Operating temperature	Ta	-20 to 80	°C
Storage temperature range	Tstg	-20 to 60	°C
ESD on connector pins (Human body model)		3000	V

Note 1: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the
device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

RECOMMENDED OPERATING CONDITIONS.

Parameter	Symbol	Min	Max	Unit
Supply voltage	Vcc	3.0	6.5	V
Operating temperature	Top	-20	80	°C

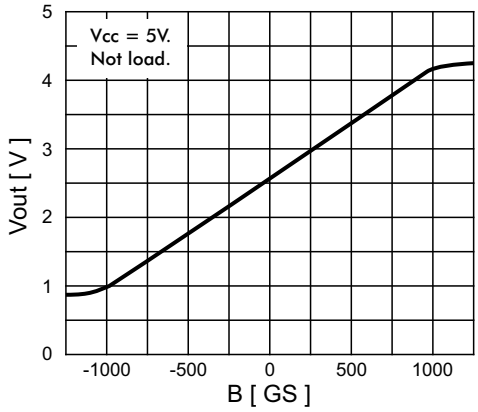
ELECTRICAL FEATURES.

(VCC=5V, TA=25°C, unless otherwise specified.)

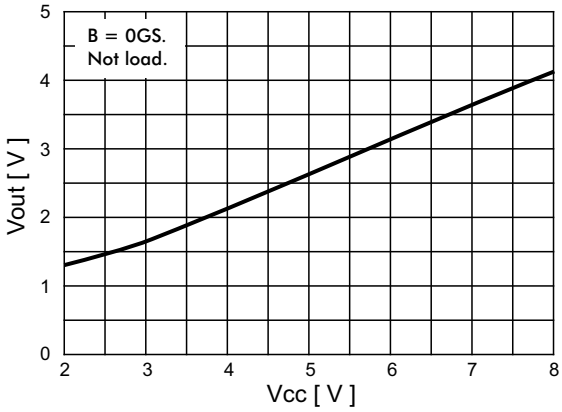
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply current	Icc	Vcc		3.5	4.5	mA
Quiescent Output Voltage	Vnull	@ B=0GS	2.25	2.5	2.75	V
Output Voltage Sensitivity	Vnull	B=0GS to ±1000GS	1.1	1.6	2.1	mV/GS
Output Voltage Span	Vos		1.1 to (VCC-1.0)	0.8 to (VCC-0.8)		V
Output Resistor	Ro			60	120	Ω
Magnetic Field Range	B		±650	±1000		GS
Linearity of Span	B			0.7		%
Output Noise		BW)10Hz to 10kHz		90		μV

Performance characteristics.

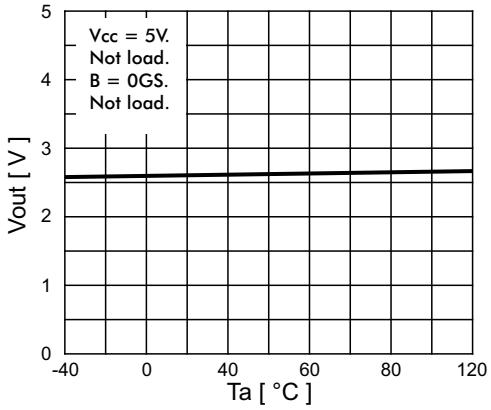
Output Voltage vs. Magnetic Field



Output Voltage vs. Supply Voltage



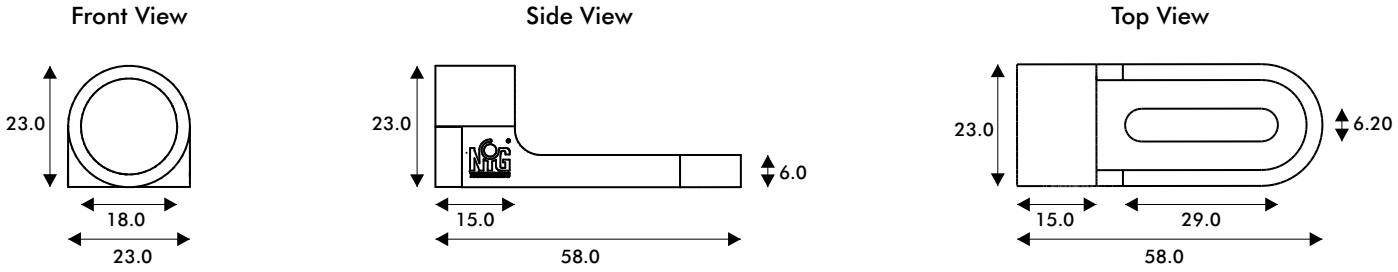
Output Voltage vs. Ambient Temperature



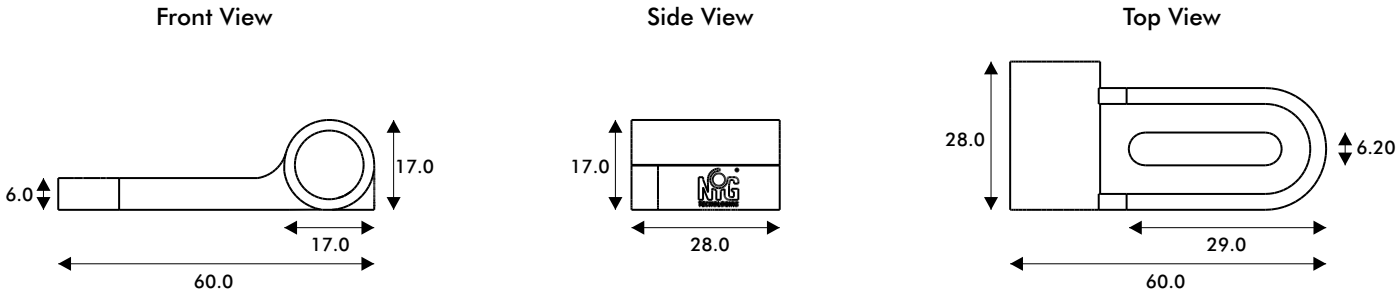
Kit Installation.

Dimensions.

SPME-01. (Dimensions in mm).



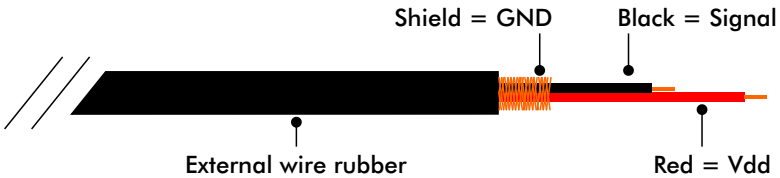
SPMR-01. (Dimensions in mm).



Pinout.

The only part that has electrical connection pins is the receiving element. In this case the SPMR-01. Below is the pinout of the sensor with the colors of the cable that is provided. The pinout of the connector will depend on the connector with which you want to assemble the sensor.

Pinout from wires colours.



Customization options

The sensor customization options are:
- Type of connector.
- Type of cable
- Type of plastic casings
- Type of emitting magnet
- Internal magnetic sensor chip for another with other electrical characteristics.