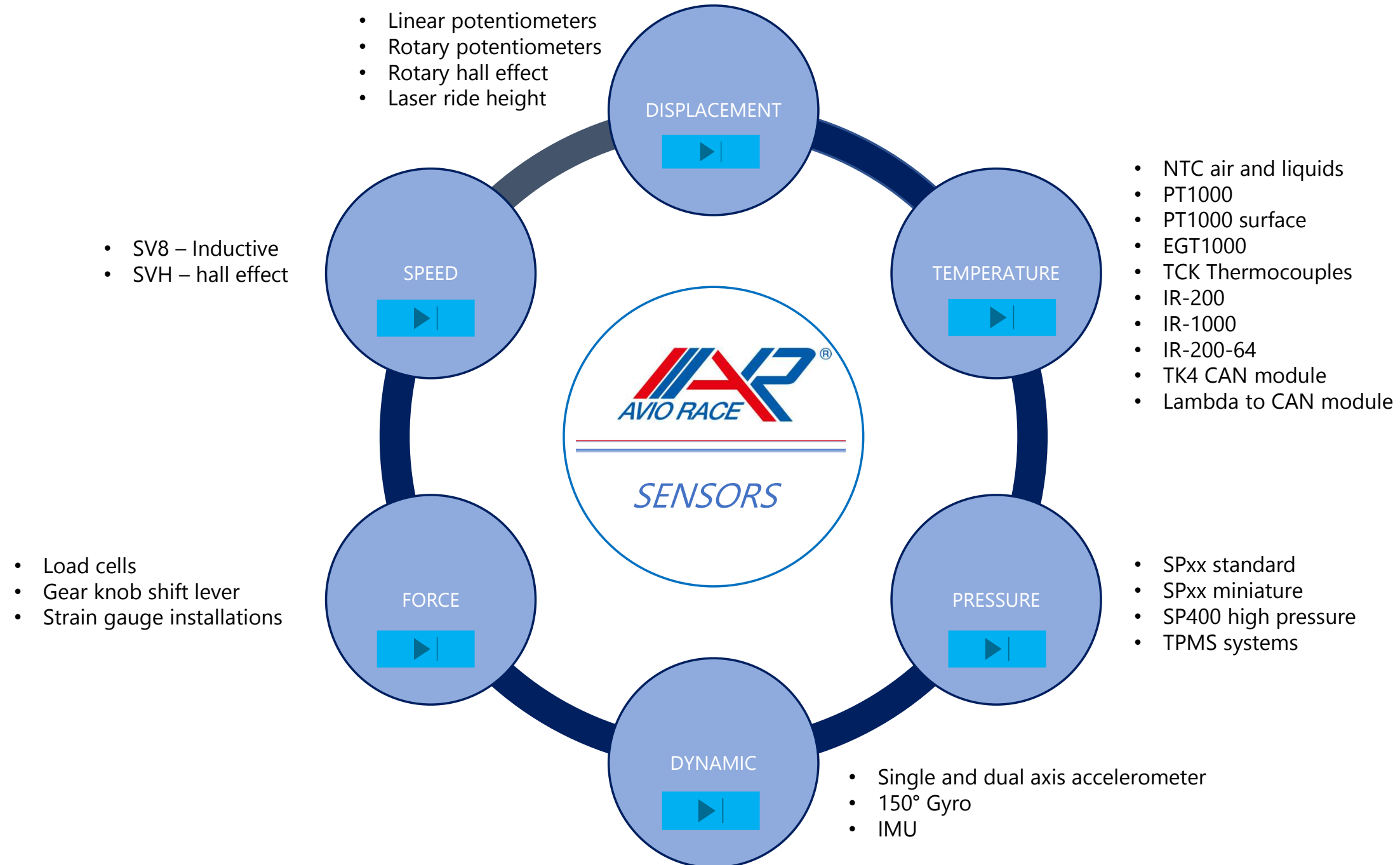




AVIORACE PRODUCTS 2021







DISPLACEMENT



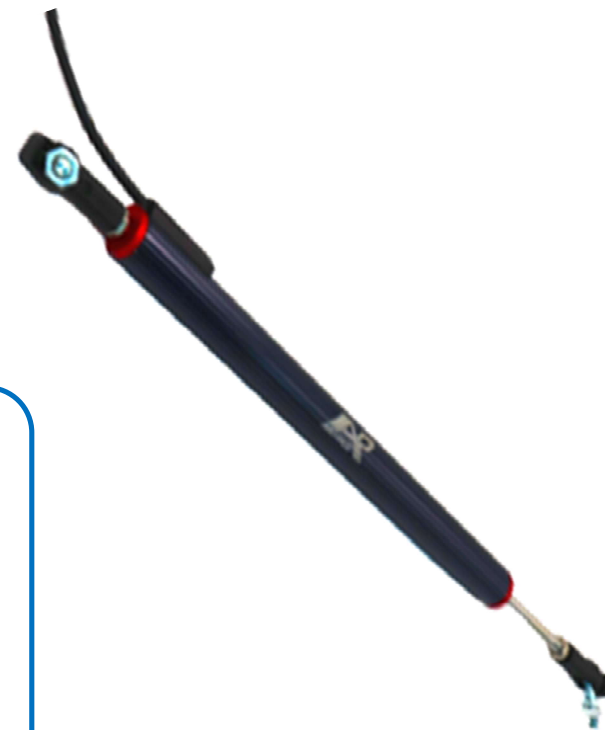


LINEAR DISPLACEMENT

Linear potentiometers

Series of linear pots compact and easy to install. These high-performance potentiometers are based on conductive plastic technology that assures lightweight and oxidate resistance.

2 versions available: external diameter 9,5mm or 13mm, several standard models available at stock. Full customization on request.



APPLICATIONS

- Suspensions
- Motorcycle forks
- Shock Absorbers
- Pedal position

TECHNICAL SPECIFICATIONS

- Maximum Supply Voltage: 40 Vdc;
- Resolution: Infinite;
- Temperature Range: -30 to 155°C (limit 175°C);
- Linearity: $\leq \pm 0.5\%$;
- Case Material: Aluminum; Stem: stainless steel
- Weight: 26 ÷ 46 gr.

CUSTOM OPTIONS*

- Shaft thickness
- Fixing systems (uniball, pop-joint, mix..)
- Out cables direction and wires end (motorsport or plastic connector)
- Data acquisition stroke (from 12,5mm up to 200mm)
- Customer Logo

*subject to extra costs or MOQ

High precision measurement SLS 220

Linear potentiometer for high precision measurement.
Return spring integrated inside the main body.



APPLICATIONS

- Shock Absorbers
- Gas pedal position
- Test labs

TECHNICAL SPECIFICATIONS

- Maximum Supply Voltage: 8.9 Vdc;
- Resolution: Infinite;
- Temperature Range: -30°C to 100°C
- Linearity: $\leq \pm 0.5\%$;
- Case Material: Nylatron MC901 / shaft: stainless steel
- Weight: 45 gr.

CUSTOM OPTIONS*

- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths
- Customer Logo

*subject to extra costs or MOQ

Rotary potentiometers SP

Rotary potentiometers are designed to convert rotary movement in proportional voltage signal. The construction technology is based on conductive plastic. The case is made of reinforced plastic to ensure good performances to vibrations and temperature shocks.

APPLICATIONS

- Detection of angular position of mechanical organs: throttle, pedals, etc.



TECHNICAL SPECIFICATIONS

- Maximum supply voltage: 42 Vdc;
- Temperature range: $-40^{\circ}\text{C} \div +150^{\circ}\text{C}$;
- Mechanical range: 360° continuous;
- Shaft: Inox Steel, Push-On;
- Weight: ≈ 30 g.

CUSTOM OPTIONS

- wires end (free wires, motorsport or plastic connector)
- Customer logo



ANGULAR DISPLACEMENT

Non Contact rotary potentiometers SRH

The Hall Effect technology allows the sensor to detect angular positions without contact. Several custom options available to adapt these products to specific applications

APPLICATIONS

- Detection of angular position of mechanical organs: throttle, pedals, etc.

TECHNICAL SPECIFICATIONS

- Electrical angle: 30° - 100° - 360° STD;
- Channel Option: Single & Dual channel (redundant);
- Supply Voltage: 5V DC (ratiometric output (10/90% Vin)); 6-30V DC (absolute output 0.5-4.5V);
- Shaft Material: Stainless Steel;
- Weight: 15g (without cable);
- Sealing: IP67.

CUSTOM OPTIONS

- Wires end (free wires, motorsport or plastic connector)
- Fixing slots and shaft shape
- Electrical angle ch1 and ch2
- Ratiometric output
- Customer logo





LASER RIDE HEIGHT

RHLX

The RHLX high performance sensor ensures fast and accurate data detection.

The black anodized aluminum case resists to high vibrations and high temperature.

APPLICATIONS

- 4X installed on car floor to detect accurate ride height of the vehicle in dynamics tests
- Movable aerodynamic components position detection



TECHNICAL SPECIFICATIONS

- Range: 300mm (50-350mm);
- Linearity: +/-0.15% of Full Scale;
- Supply voltage: 12-28 V (100mA);
- Temperature range: Operating:-10 to +50 °C;
- Storage: -10° C to +80 °C.

CUSTOM OPTIONS*

- Wires end (free wires, motorsport or plastic connector)

*subject to extra costs or MOQ



TEMPERATURE





LIQUID, AIR TEMPERATURE

ST_AIR & ST250

NTC technology based temperature sensors are designed for liquids or gas measurement. The stainless steel body preserves mechanical characteristics and allows the sensor to provide a quick response to temperature changes.



APPLICATIONS

- Liquids or gas measurements like H2O circuits, oil circuits, air intake manifolds...

TECHNICAL SPECIFICATIONS

- Material: Stainless Steel;
- Measurement range: $-40 \div 200^{\circ}\text{C}$;
- Accuracy: $\pm 1^{\circ}\text{C}$ in range $0 \div 175^{\circ}\text{C}$;
- Thread: M6x1;
- Weight: ≈ 13 g.

CUSTOM OPTIONS*

- Specific body materials: Inconel, Titanium...
- Specific fixing threads: M8x1, 3/8UNF...
- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths.

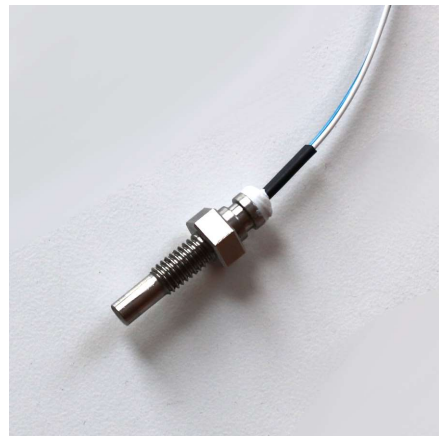
*subject to extra costs or MOQ



LIQUID, AIR TEMPERATURE

PT1000

PT1000 temperature sensor ensures accuracy and high speed response in liquid or gas measurements.



APPLICATIONS

- Liquids or gas measurements like H2O circuits, oil circuits, air intake manifolds...

TECHNICAL SPECIFICATIONS

- Material: Stainless Steel;
- Measurement range: $-40 \div 200^{\circ}\text{C}$;
- Accuracy: $\pm 1^{\circ}\text{C}$ in range $0 \div 175^{\circ}\text{C}$;
- Thread: M6x1;
- Weight: ≈ 13 g.

CUSTOM OPTIONS*

- Specific body materials: Inconel, Titanium...
- Specific fixing threads: M8x1, 3/8UNF...
- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths.
- Specific tests & certifications

*subject to extra costs or MOQ



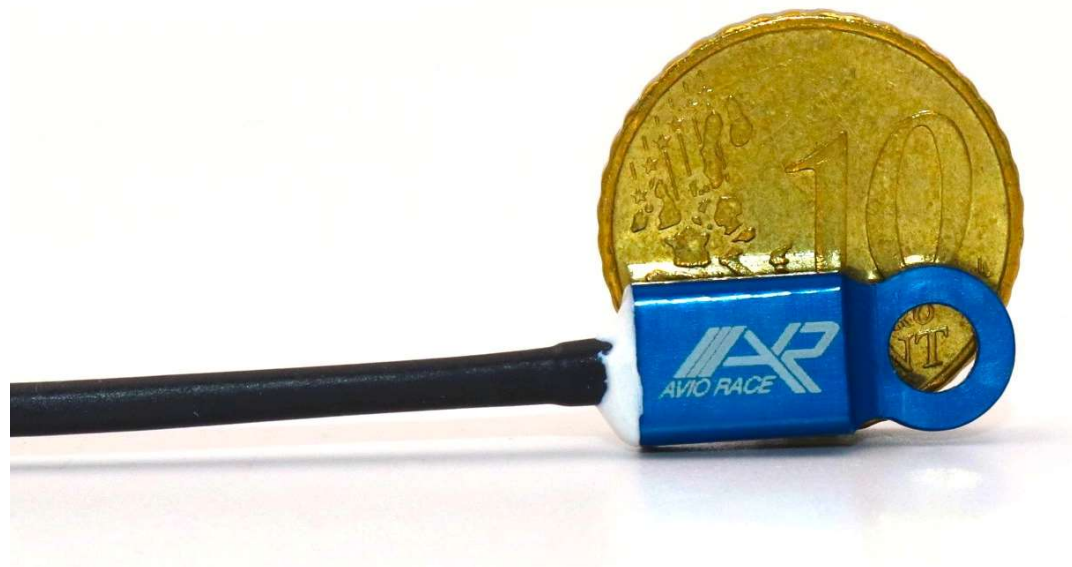
SURFACE TEMPERATURE

PT1000 surface

The extra small dimensions of the sensor allows it to be used in confined space. Miniaturized PT1000 is an A-Class accuracy sensor used for measuring surface temperatures.

APPLICATIONS

- Surface temperature measurements, generic.



TECHNICAL SPECIFICATIONS

- Material: Aluminum;
- Measurement Range: $-30 \div +200^{\circ}\text{C}$;
- Accuracy: A Class, according to standard IEC60751;
- Protection: IP67;
- Weight: $\approx 6\text{gr}$.

CUSTOM OPTIONS*

- Specific fixing shapes
- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths.
- Specific tests & certifications

*subject to extra costs or MOQ



EXHAUST GAS TEMPERATURE MEASUREMENT

EGT1000

The EGT1000 sensor is composed by a platinum body that ensures resistance to high temperatures.

APPLICATIONS

- Exhaust Gas Temperature measurement.



TECHNICAL SPECIFICATIONS

- Operating Range: $-40^{\circ}\text{C} \div 1000^{\circ}\text{C}$;
- Sensor Accuracy: $\pm 0,9\%$ to 900°C ;
- Weight: $50\text{g} \pm 3\text{g}$;
- Operation Current: $2.7\text{mA} - 4.2\text{mA}$.

CUSTOM OPTIONS*

- Fixing thread
- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths.
- Specific tests & certifications

*subject to extra costs or MOQ

TCK

The TCK thermocouple ensures elevated noise resistance thanks to its insulated junction. The good heating transmission between Inconel coating and junction allows the sensor to rapidly respond. Thanks to its mechanical characteristics the TCK can be used in restricted areas.

APPLICATIONS

- Liquid or gas temperature measurement.
- Temperature measurement – generic



TECHNICAL SPECIFICATIONS

- Thermocouple type: K , 1st class;
- Coating material: Inconel 600;
- Measurement range: $-40 \div 1000$ °C;
- Tolerance: 1,5°C till 375 °C $0,004 \times [T]$ over 375°C;
- Weight: ≈ 50 g.

CUSTOM OPTIONS

- Configuration of dedicated kits in combination with TK4 CAN modules



INFRARED SINGLE SPOT TEMPERATURE SENSOR

IR 200 - Single spot infrared sensor

The infrared sensor measures temperature at a calibrated distance range without touching the target. The Output voltage is proportional to the detected temperature.

The external case is made of premium aluminum



TECHNICAL SPECIFICATIONS

- Supply voltage Single spot sensor: 5÷16 Vdc;
- Output voltage Single spot sensor: 0÷5 Vdc;
- Current consumption Single spot: 10 mA MAX;
- Full scale: 150°C or 200°C;
- Measurement distance Single spot: 50÷150 mm;
- Protection IP64
- Weight: ≈ 20 g.

APPLICATIONS

- Tyre temperature measurement.
- Single spot non-contact thermal management

CUSTOM OPTIONS

- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths.



INFRARED SINGLE SPOT TEMPERATURE SENSOR

IR 1000 - Single spot infrared sensor

Infrared sensor, specifically designed for brake discs temperature measurement. The output voltage is proportional to the detected temperature and the accuracy of the signal is very high. The sensor has three different elements built-in, to actively compensate the output signals. Mechanical: aluminum body red anodized, fully sealed



APPLICATIONS

- Brake discs temperature measurement
- Any contactless application for test labs or industrial environments

TECHNICAL SPECIFICATIONS

- Supply voltage: 7 ÷ 24 Vdc;
- Output voltage: 0 ÷ 5 Vdc;
- Current consumption: 23mA;
- Measurement distance: 30 ÷ 100 mm;
- Protection: IP64;
- Weight: ≈ 14 g.

CUSTOM OPTIONS

- Configuration of specific kits in combination with CAN modules



INFRARED MULTI SPOT TEMPERATURE SENSOR

IR 200 – 64 Multi spot infrared sensor

The Infrared sensor measures temperature at a distance without touching the target. It detects thermal radiations emitted by objects on 64 points (4 rows x 16 columns). The data are transmitted via CAN bus. A typical application is the tire temperature measurement. The sensor is available in three versions with three different fields of view: 40°, 60°, 120°.



APPLICATIONS

- Tyre temperature measurement
- Any contactless application for test labs or industrial environments

TECHNICAL SPECIFICATIONS

- Supply voltage Multi spot sensor: 7÷24 Vdc
- Output voltage Multi spot sensor: CAN line;
- Current consumption Multi spot: 7 mA;
- Full scale: 150°C or 200°C;
- Measurement distance Multi spot: 20÷400 mm;
- Protection: IP64
- Weight: ≈ 20 g.

CUSTOM OPTIONS

- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths.



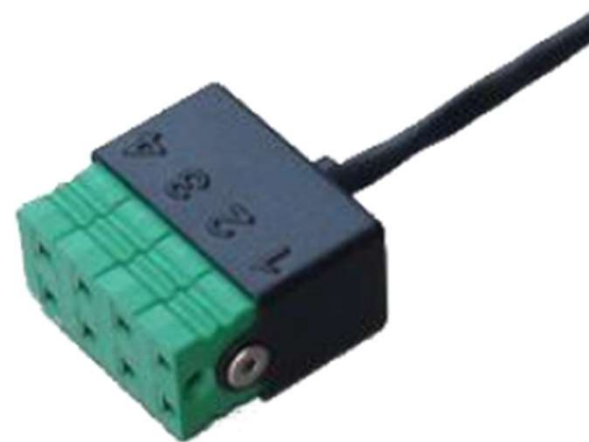
TK4 CAN MODULE

TK4

The TK4 is a small module that converts 4 k-type thermocouples signal in CAN – BUS. The CAN bus is configurable by using a free application software. It is possible to set the CAN speed, message frequency, message ID and many other settings.

APPLICATIONS

- Exhaust temperature measurement;
- Brakes temperature management.



TECHNICAL SPECIFICATIONS

- Power supply: 5,5 – 16 Vdc;
- Supply current 15mA;
- Transmission: CAN line 2.0A or 2.0B;
- Input low pass filter: 160 Hz;
- Resolution: 0,4 °C;
- Accuracy: $\pm 1\%$

CUSTOM OPTIONS

- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths.



LAMBDA TO CAN

Lambda to Can

LCU4 controls and reads 4 Bosch LSU 4.9 lambda sensor.

The CAN bus output is fully compatible with MoTeC M1 ECU or Dashboard protocol.

APPLICATIONS

- CAN bus acquisition of Lambda signals



TECHNICAL SPECIFICATIONS

- Power Supply: 8÷16 Vdc;
- Max Current Absorption: 6 A (during sensors heating)Transmission: CAN line 2.0A or 2.0B;
- Protection: IP66;
- Weight with wires: ≈ 121 g;
- Connection: Plastic JAE Connector.

CUSTOM OPTIONS*

- Mating connectors: PN→MX47039NF1;
- AR21-021-01A loom.

*subject to extra costs or MOQ



PRESSURE





PIEZORESISTIVE PRESSURE SENSORS

Piezoresistive pressure sensors

Active pressure transducer, linear, ideal for any application. The body and diaphragm are stainless steel made AISI 316L, fully resistant to chemical attacks by standard motorsport fluids. It integrates a Packard connector

APPLICATIONS

- Chassis (brakes, lifters..);
- Engine application (H2O, oil, etc..)



TECHNICAL SPECIFICATIONS

- Power Supply: 5 V \pm 0,25 V;
- Output voltage: 0,5 V...4,5V ratiometric;
- Protection: IP67;
- Weight: \approx 50 g.

CUSTOM OPTIONS*

- Fixing threads
- Specific calibrations
- Absolute P and/or T compensated
- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths

*subject to extra costs or MOQ



PIEZORESISTIVE PRESSURE SENSORS - MINIATURE

PIEZORESISTIVE PRESSURE MINI TRANSDUCER SPxx-M8x1 or 3/8 UNF

Piezoresistive pressure mini transducer, linear analogue output, amplified, designed to resist to vibrations, temperature shocks and fluids typical of motorsports applications. Body structure is in stainless steel; protection cap in ergal; wires and tubes motorsport graded.

APPLICATIONS

- Chassis applications like brakes pumps,
- Engine/gearbox applications
- Cooling systems



TECHNICAL SPECIFICATIONS

- Power Supply: 8÷28 V;
- Output voltage: 0,5 V...4,5V NOT ratiometric;
- Current consumption: 3,5mA;
- Sealing: IP67;
- Weight: ≈ 34 g.

CUSTOM OPTIONS*

- Ergal junction for fitting on banjo screw;
- Viton version for hermetic applications;
- Custom calibration.
- Absolute P and/or T compensated
- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths

*subject to extra costs or MOQ



PIEZORESISTIVE PRESSURE SENSORS – MINIATURE HIGH PRESSURE

PIEZORESISTIVE PRESSURE MINI TRANSDUCER SP400-M8X1 or 3/8 UNF

Piezoresistive pressure mini transducer, linear analogue output, amplified, designed to resist to vibrations, temperature shocks and fluids typical of motorsports applications.

Body structure is in stainless steel; protection cap in ergal; wires and tubes are motorsport graded.

Suitable for measurement on high pressure applications (e.g. Fuel Rail)

APPLICATIONS

- Engine
- Any high pressure measurements.



TECHNICAL SPECIFICATIONS

- Power Supply: 8÷28 V;
- Output voltage: 0,5 V...4,5V NOT ratiometric;
- Linearization: 0,5 V = 0 _____ 4,5 V = FS;
- Sealing: IP67;
- Weight: ≈ 40 g.

CUSTOM OPTIONS

- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths



TPMS SYSTEMS

TPMS systems

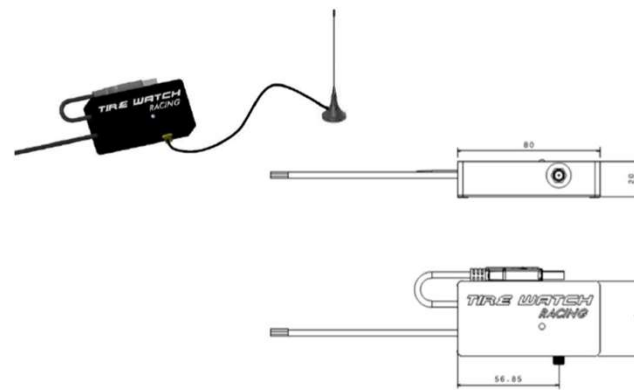
The TPMS systems are used for tires pressure and temperature real time detecting and to store and monitor data. It requires 1 or max 2 antenna to detect the sensors: easy installation!

Specific versions available:

- LMS racing – high performance sensors + RCU double antenna connected to vehicle ECU.
- GT Type – longer life sensors + RCU double antenna connected to vehicle ECU
- Sport Series – Long life sensors + mini display receiver to detect live pressure and temperature

APPLICATIONS

- Detecting tires pressure and temperature.



TECHNICAL SPECIFICATIONS

RECEPTION CONTROL UNIT (RCU):

- Power Supply: 9 – 16 Vdc;
- Current Supply: 60 mA at 12V (max 100 mA in logging);
- Transmission: CAN line 2.0A, 1MBps.

WHEEL SENSORS (WUS):

- Sensor life: > 1 race season;
- Measuring pressure range: 0 – 3,5 bar;
- Pressure accuracy: ± 20 mbar;
- Monitored temperature range: -40 / 125 °C;
- Temperature accuracy: ± 2 °C;
- Weight: 47 g.



DYNAMIC





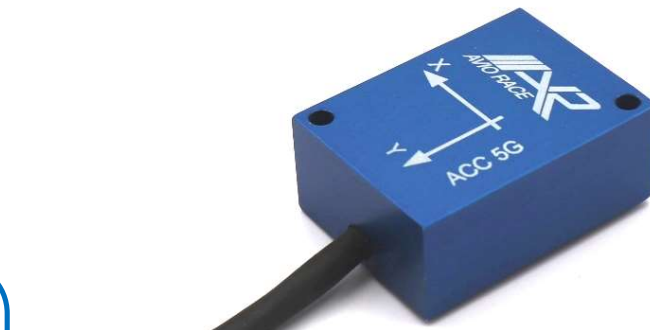
DYNAMIC SENSORS: ACCELEROMETER

ACC5G

The dual or single axis accelerometer ACC5G is designed for vehicle dynamic measurements. This sensor offers high speed response and low sensitive to temperature variations. The anodized case ensures chemical resistance to motorsport fluids.

APPLICATIONS

- Vehicles dynamics data acquisition



TECHNICAL SPECIFICATIONS

- Supply voltage: 5Vdc \pm 0,25V;
- Output voltage: 0 V \div 5V ratiometric;
- Output Sensitivity: 185mV/g;
- Weight: \approx 20 g.

CUSTOM OPTIONS

- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths



DYNAMIC SENSORS: GYROSCOPE

GYRO150

The gyroscope GYRO150 is used in many different kind of vehicles, from motorcycles to boats. The anodized aluminum case ensures chemical resistance to motorsport fluids.

APPLICATIONS

- Vehicles dynamics data acquisition



TECHNICAL SPECIFICATIONS

- Power supply: 5Vdc or 12 Vdc \pm 0,25 V;
- Output voltage: 0,25 V \div 4,75V ratiometric;
- Sensitivity: 12.5mV/°/sec ;
- Weight: \approx 27 gr.

CUSTOM OPTIONS

- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths

IMU: Inertial Measurement Unit

Inertial measurement unit able to output acceleration and angular acceleration on 3 axis.
The can bus output parameters can be configured in different ranges with specific can message/tools.

APPLICATIONS

- Vehicles dynamics data acquisition and analysis.



TECHNICAL SPECIFICATIONS

- Power Supply: 8÷16 Vdc;
- Working Temperature Range: 0÷80 °C (internal compensation on all axis);
- Material: Anodized aluminum;
- Protection: IP64,
- Weight with wires: ≈ 58 g

CUSTOM OPTIONS

- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths



FORCE





FORCE SENSORS: AR006

AR006

The load cell AR006 is designed for being applied on gear shafts.

The output voltage is proportional to applied compression or extension force.

APPLICATIONS

- Compression and extension force measurements.

TECHNICAL SPECIFICATIONS

- Supply: 5÷24 Vdc;
- Output range: 0÷5V;
- Material: Stainless Steel 17-4;
- Case material: Aluminum;
- Weight: ≈ 35 g.

CUSTOM OPTIONS

- Available in M8X1,25 or M6X1.
- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths





FORCE SENSORS: GEAR KNOB KIT

AR008-09

The gear knob sensor AR008-09 fits to every kind of data logger and is designed to provide a linear volt signal which is proportional to applied force.

APPLICATIONS

- Gear shift force measurement

TECHNICAL SPECIFICATIONS

- Case: Aluminium;
- Thread: M20x1,5;
- Range: ± 100 Kg;
- Overload: ± 150 Kg;
- Output signal: $0 \div 5$ Vdc.



Strain gauge application

Strain gauges installation service on mechanical components. The integrated electronics amplifies the signal: output voltage and characteristics of the signal are compliant to most of the Motorsport data loggers



APPLICATIONS

- Tie rods
- Shafts
- Suspension arms
- Forks, dampers

CUSTOM OPTIONS

- Output calibration
- Wires length and application of connectors (autosport or plastic)



SPEED





SPEED SENSORS: SV8

SV8

The speed sensor SV8 is based on inductive technology NPN – NO.
Stainless steel body, easy to install and designed to easily tune the sensor to specific application.

APPLICATIONS

- Crank shafts measurement
- gear speed
- positions



TECHNICAL SPECIFICATIONS

- Supply: 12 ÷ 24 Vdc;
- MAX Current consumption: 10mA;
- MAX Working distance: 2 mm;
- Typ. Working distance: 0.5 - 1.6mm;
- Weight: ≈ 60 g.

CUSTOM OPTIONS

- Fixing thread
- Body materials
- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths



SPEED SENSORS: SVH

SVH

The SVH is a differential hall effect sensor. The output is subjected by changing on magnetic fields. The sensor is composed by fully machined and blue anodized aluminum body.

APPLICATIONS

- Speed measurement

TECHNICAL SPECIFICATIONS

- Supply Voltage: 5 ÷ 18 Vdc;
- Working distance: up to 4 mm depending on targets material (magnets ensure highest gaps);
- Max frequency: up to 5 KHz;
- Weight: ≈ 26 g;
- Protection: IP67.

CUSTOM OPTIONS

- 90° cable exit and straight versions (SVH-S) available.
- Plug & play versions with Motorsport or Aftermarket connectors and custom wires lengths
- Specific fixing / custom body





THANK YOU!

