texense
sensors by TEXYS

SENSOR Product Range

Leading the field in sensor technology

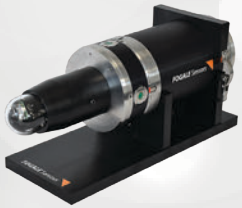
V4

a brand of
texys GROUP

Index

At TEXYS Group we design, develop, manufacture and distribute our wide range of TEXENSE® sensors for embedded measurement and monitoring (pressure, force, temperature, speed, inertia, current) and we are globally recognised as experts in different technologies (infrared, optical fibre, strain gauging, wireless communication, signal conditioning).

www.texysgroup.com



FOGALE Sensors

Late 2023, **Texys** and **FOGALE Sensors** formed a new group driven by a taste for **innovation** and an appetite for **technological challenges**, with the aim of developing ever more **innovative solutions**, providing mutual know-how and technological **expertise**. Capitalizing on the complementarity of each entity, the group's ambition is to strengthen its position in existing markets and develop new solutions to address high-end customers' needs in metrology and Human-Machine Interactions for even more performant measurements.

About FOGALE Sensors

FOGALE Sensors, a leader in high-precision metrology, provides full systems, from sensors to data acquisition systems, to various industries and research centers, offering cutting-edge solutions. Proficient in capacitive, inductive, and optical technologies, FOGALE Sensors redefines precision measurement through innovation and unwavering quality commitment.

www.fogale.com

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TEXENSE® is the range of products designed, manufactured, and distributed by TEXYS Group, who develop unique and patented technologies.

Specialists in **contactless infrared temperature** measurement, we can provide a tailored solution to suit any installation and level of emissivity. Our range covers single, multipoint, and wireless IR measurement all with accuracy and reliability for embedded sensors.

Our **accelerometers, gyroscopes, inertial modules, and aerodynamic pressure sensors** combine optimised mechanical packaging, reliability, accuracy and integrated signal conditioning.

Our **strain gauging** service is entirely managed within our production facilities in France at TEXYS, and in the USA at RMS (Remote Mechanical Sensing LLC), subsidiary of TEXYS America LLC, and takes advantage of the in-house developed XN4 digital amplifier: mechanical customer parts can be strain gauged with a quick turn-around, and specific products such as the TEXENSE® WTS (Wireless Torque Sensor) illustrate our know-how on the complete application (strain gauging, radio transmission and signal conditioning).

www.texense.com

Our stores

sens4pro
Sensors Store by TEXYS

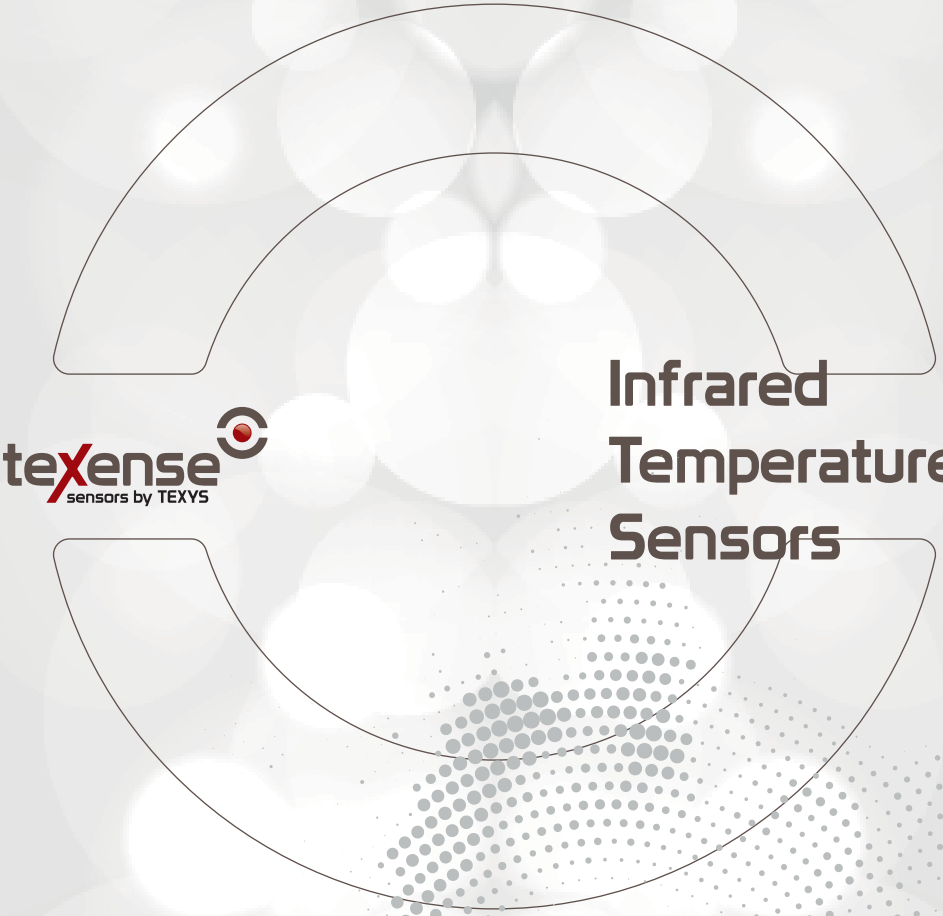
Sens4Pro, TEXENSE®'s online store of high technology sensors for professionals, designed for all types of industries.
You will find products from the TEXENSE® pro range on a dedicated B2B portal.
A multitude of sensors are available: gyroscope, temperature sensor with and without contact (infrared, guided optics) single or multipoint, signal converter, inertial sensor, strain gauge amplifier and many more.

www.sens4pro.com

sens4speed
Sensors Store by TEXYS

Sens4Speed, TEXENSE®'s online store of high-tech embedded sensors dedicated to semi-professional applications with easy installation.
You will find products from the TEXENSE® Racing Series range.
A multitude of sensors are available: accelerometer, thermocouple amplifier, pressure, fluid temperature, tyre temperature, wheel speed and many more.

www.sens4speed.com



Infrared Temperature Sensors

INF(V/T/TS)-150/200

- Single spot analog IR temperature sensor
- For tyre temperature
- 3 designs: TS, T or M12
- Range up to 200°C

OPTION: LINEAR OUTPUT

The INFT/V/TS is our baseline single spot analog IR sensor. It gives a dependable and accurate measurement, along with three enclosure styles for ease of mounting. Available in 150°C range, a 200°C linear version and a right angle output cable.

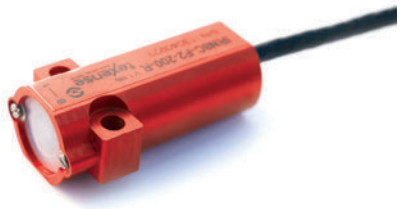
IRN4/8

- Multispot digital IR temperature sensor
- 4 or 8 spots for tyre surface temperature
- Replaceable lens cover
- CAN output
- Range up to 200°C
- 2 housing designs

The IRN8 and its 4-channel version, the IRN4 has been the benchmark in multi-channel tyre surface temperature measurement for nearly a decade. It utilises bespoke components unique to TEXENSE® and offers reliable and accurate tyre data, with all 4 or 8 channels being read by a single, central sensing element. Typical applications are single-seaters but can also be used in applications where it can be mounted a sufficient distance from the tyre to achieve a full measurement across the tyre surface. It outputs directly to any generic CAN system. A wireless 8-channel version is also available - please see our wireless products for more details.

IRNMx-12/16

- Multispot digital IR temperature sensor
- 12 or 16 Channels for tyre surface temperature
- Replaceable lens cover
- Narrow FOV option
- CAN output
- Range up to 200°C



The IRNMx is an improvement from the IRN8. It offers 12 or 16 points of IR measurement across the tyre and its Field of View (FOV) has been narrowed to enable remote installations up to 1000mm from the tyre, while still maintening accuracy. The measurement width is customisable. Typical applications are single-seaters but can also be used in applications where it can be mounted a sufficient distance from the tyre to achieve a full measurement across the tyre surface. It outputs directly to any generic CAN system.

IRN-RC

- Multispot digital IR temperature sensor
- 3 to 8 spots for tyre surface temperature
- Versatile sensor
- Replaceable lens cover
- CAN output
- Range up to 200°C
- Option: Wireless version*

The IRN-RC is designed specifically for closed wheel vehicles in order to allow an optimum measuring distance between the sensor and the tyre surface for maximum accuracy. Typical applications are touring cars or GT cars. Also because the strip is flexible, it is a great solution for tyre temperature measurement on motorcycles, and is widely used in Moto GP. It can be built with between 3 and 8 sensing heads and combined with a small CAN module, outputs to any generic CAN system. The total width and the dimensions between sensing heads are defined by the customer and built at our factory.

*A wireless version is also available - please see our wireless products for more details.

Infrared Temperature Sensors

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MB-FLEX

- Multispot digital IR temperature sensor
- 3 to 8 spots for tyre surface temperature
- Replaceable lens cover
- Versatile sensor placement
- CAN output
- Range up to 200°C

The MB-FLEX is designed specifically for closed wheel vehicles in order to allow a optimum measuring distance between the sensor and the tyre surface for maximum accuracy. Typical applications are touring cars and GT cars. Also because the strip is flexible, it is a great solution for tyre temperature measurement on motorcycles, and is widely used in many motorcycle championships, including Moto GP. It can be built with between 3 and 8 sensing heads and combined with a small CAN module, outputs to any generic CAN system. The total width and the dimensions between sensing heads is completely flexible and can be set by the customer.

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MiB

- Micro Bolometer thermal camera
- Multispot digital IR temperature camera
- Up to 240 pixels for wide surface temperature (tyre, radiator, etc.)
- Fast 100Hz sampling
- 66° or 113° FOV options
- Most accurate embedded system (<1%FS)
- CAN output
- Range up to 200°C
- 2 housing designs: Straight or Elbow
- MIB-S-P: IP67 waterproof version

The revolutionary micro bolometer based thermal camera system is the most accurate form of external tyre temperature measurement available on the market today with accuracy of <1% FS over 240 pixels. It is available with varying lens options to give a Field of View (FOV) of 66 or 113° and the data is output via CAN. The temperature data can be configured to either 4x60 pixels or 2x70 pixels (other pixel matrix available on request).
NEW! MIB-S-P, an IP67 waterproof version, is now available.

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MIB-PTP-E

- Embedded micro-bolometer thermal camera
- Digital IR camera
- Up to 480 pixels for surface temperature (tyre, radiator, etc.)
- 100Hz sampling
- Range up to 200°C – with 1%FS accuracy
- 8 GB of on-board storage for data recording
- PTP v2 compatible
- Fast data output via Ethernet

The MIB-PTP-E is a significant evolution of a proven, high-end product from our temperature sensing range. This micro-bolometer based thermal camera system is designed for many applications including industrial & military vehicles, aircraft, but also for motorsport. Thanks to its compact & lightweight housing, the MIB-PTP-E can be easily installed for temperature measurement. It is a fast, reliable and accurate sensor, with an 80x60 pixel camera resolution.

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IRN3 / IRN3-HT / IRN3-R

- Single spot digital IR temperature sensor
- For track/road/surface monitoring
- Flush protected lens design
- Range from 100 to 400°C
- Replaceable protected lens version (IRN3-R)

Optional High Temperature specification
- **Multipurpose use up to 300°C**
- **Can be matched to specific materials and emissivities**

The IRN3 is a digital sensor developed for measuring the track or road surface. The design is a result of years of careful developments, such as the recessed lens to minimise the cooling effects of airflow on the sensor. Also available with a flush protective glass window.

Infrared Temperature Sensors

INF-LR

- Single spot analog IR temperature sensor
- Dual output signals: High and Low temperature Range
- Operating temperature up to 150°C
- Measuring range HR +200 to +1000°C
- Measuring range LR +25 to +350°C

INF(V/T/TS)-700/1000/1200

- Single spot analog IR temperature sensor for brake or clutch application
- Operating temperature up to 150°C
- Range up to 1200°C
- 3 designs: TS, T or M12

The INFT/V/TS is our baseline single spot IR sensor. It gives a dependable and accurate measurement, along with three different enclosure styles for ease of mounting. Its robust design allows survival temperatures up to 150°C. Available in 700°C, 1000°C and 1200°C ranges.

INF(T/TS)-700/1000/1200-MC

- Single spot analog IR temperature sensor for brake or clutch application
- Operating temperature up to 150°C
- Integrated Military connector
- Range up to 1200°C
- 2 designs: T or TS

Integrated Military connector version of our baseline single spot IR sensor. Using a specific thermopile, it gives a dependable and accurate measurement, along with two different enclosure styles for ease of mounting. Its robust design allows survival temperatures up to 150°C. Available in 700°C, 1000°C and 1200°C ranges.

INF-V4

- Compact and ruggedised single spot analog IR temperature sensor
- Operating temperature up to 200°C
- Optional linearisation module
- Range: 500/1000/1200/1300°C

Building on the success of our single channel sensors, the INF-V4 was created to minimise packaging space and to survive in higher temperatures. Using Military specification PCB/components, the INF-V4 can survive temperatures up to 200°C. It also utilises an internal temperature channel which can be paired with our linearisation module.

IR-BK

- Multispot digital IR temperature sensor
- 4 channels for precise brake temperature measurement
- CAN output
- In-line housing
- Range up to 1200°C

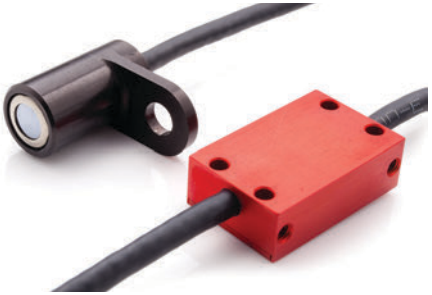
IRN2-V/T/TS/INOX

- Single spot digital IR temperature sensor for brake or clutch application
- M12 (Alu / Inox) or Rectangular (Alu)
- Specially designed for steel surfaces
- Range up to 1200°C

The IRN2 is designed to measure surface temperature in the most accurate way.
Designed into a rugged M12-INOX steel housing, the IRN2-INOX is suitable for harsh environments such as seasonal automotive testing.

INF-CLT

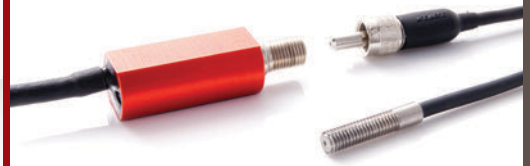
- Single spot analog IR temperature sensor for applications such as clutch
- Remote sensor head from the electronics
- Operating temperature up to 180°C (sensor head)
- Range from 500 up to 1200°C



The clutch sensor was designed to place the electronics and amplification away from the direct heat source of the clutch. The thermopile head uses only crimped components and is rated to 180°C, so is very dependable in this location. The amplifier can be mounted up to 700mm away from the head. The precise distance is defined by the customer.

IFbN

- Single spot analog IR for specialist temperature measurement
- Optical fibre with remote electronics
- Harsh environments
- Unaffected by EMI/RFI
- Range from 200 to 1200°C



The IFbN utilises a fast photodiode, collecting the IR radiation through an optical fibre, for accurate surface temperature and fast reaction speed of <1ms. The fibre optic cables are manufactured in-house and can be tailored to customers' requirements with the standard being a M4x20mm design. The optical fibre enables to perform measurements in harsh environments, over 250°C and with EMI/RFI perturbation as in an electrical engine.

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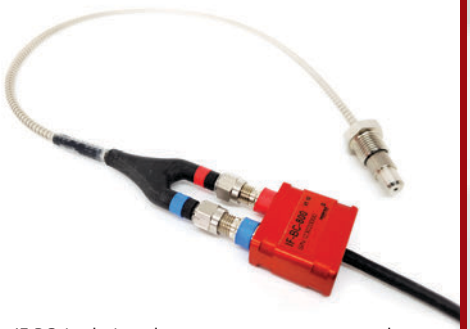
IF-BC

- Single spot analog IR sensor for emissivity independent temperature measurement
- Miniaturised & embedded bichromatic pyrometer
- Measuring Range: +110 to +800°C
- Extremely harsh environments
- Sensing head can withstand temperatures up to 300°C
- Customisable fibre length and tip



The IF-BC is designed to measure temperature always accurately, without recalibration, regardless of the type of material and the evolution of its surface condition & emissivity (0.25-1), such as on any steel surface e.g. steel brake discs.
The IF-BC has many potential applications: it can measure temperature on engine parts, braking systems, rotors & rotating machinery, moulds, metalwork, pipes… and is also designed to monitor industrial processes (boilermaking, machining, etc.).

Infrared Temperature Sensors

Contact Temperature Sensors

TS-150°C / TS-NTC

- Liquid or air temperature sensor
- Amplified analog output
- CNC stainless steel body
- NTC option
- Various form factors: M6-M8-M12-NPT 1/8", 1/4", 1/2"
- Range 0° up to 100° or 150°C

The TEXENSE® liquid temperature sensor is housed in a CNC machined stainless steel body with integrated amplifier and analog output. Available with 1/8 NPT, M6 or M8 thread.

TS-Air version available for air temperature measurement

CTK

- Brake caliper temperature sensor kit
- CNC stainless steel body
- Originally designed to suit Brembo/AP/ PFC fitting requirements
- Spare probes available separately (PT-BC and PT-BP)
- Available as PT100/PT1000
- Range from -50 to +300°C

The TEXENSE® CTK caliper temperature kit is designed to fit most major manufacturer calipers such as AP, Brembo, PFC. Its CNC machined stainless steel body is robust and reliable. Both probe and amplifier are available separately.

Contact Temperature Sensors

PT-100/1000/2000

- Platinum Probe PT100/PT1000/PT2000
- CNC stainless steel body
- 1/8 NPT, 1/2 NPT, M6 or M8 thread
- Range from -50 to +200°C

The TEXENSE® PT100/1000/2000 is housed in a CNC machined stainless steel body and is compatible with our PT amplifiers or used directly with any system designed for PT inputs. Available with M6, M8, NPT 1/8", 1/2" thread.

Contact Temperature Sensors

APTAB

- In-line PT50, PT100, PT500 and PT1000 amplifier
- Lightweight housing for remote installations
- 0-5V analog output
- Range from -100 to +400°C

In-line amplifier dedicated to amplify the signals from PT100, PT500 and 1000 platinum probes. The APTAB amplifier is built in a very compact housing allowing an easy installation into any wiring loom (Racing, Automotive, Aeronautic, Military, etc). The temperature measuring range can be from -100 up to +400°C (depending on the platinum probe) and the TEXENSE® APTAB amplifier provides a linear output between 0 to 5 V. This platinum probe amplifier is extremely accurate.

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THA

- Analog thermocouple amplifier
- Electronics integrated into the connector with patented design
- 0-5V analog output
- C type: 0/2300°C
- K type: 50/200°C
- K type: 100/400°C
- K type: 0/1000°C
- K type: 0/1250°C
- T type: -50/200°C
- T type: -100/400°C
- T type: 0/1000°C
- T type: 0/1250°C

The THA thermocouple amplifier is a patented product and incorporates the amplification electronics into the rear of the thermocouple connector for a seamless package. It can be used with any commercially available K type probe and is available in four versions covering all temperature ranges.

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THN / THNF

- Fast digital thermocouple amplifier
- Electronics integrated into the connector with patented design
- Analog and digital outputs
- CAN bus output available as option
- Sampling rate from 5 Hz up to 1 kHz
- Any junction type (C, B, E, J, K, N, R, S, T, etc...)
- IEC / ANSI standard
- Any range
- 0-5V or 0-10V output + digital output

The THNF thermocouple amplifier is a patented product and incorporates the amplification electronics into the rear of the thermocouple connector for a seamless package with both digital and analog outputs. It can be used with any probe type and is available in many versions covering all temperature ranges.

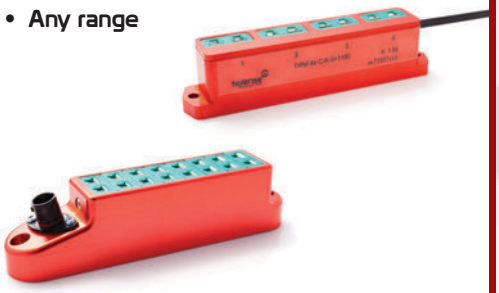
THN

- 5Hz version of the THNF
- Junction types (J, K, R, T)
- IEC / ANSI standard

Contact Temperature Sensors

THNF4xC / THNF8xC

- Assembly of 4x or 8x fast digital thermocouple amplifier THNF
- CAN bus output
- 100 or 50 Hz sampling rate
- Any junction type (C, B, E, J, K, N, R, S, T, etc...)
- Any range



The THNFx4-C & THNFx8-C thermocouple amplifiers provide 4 or 8ch TC inputs with a fast sampling rate of 100 (4Ch) or 50 Hz (8Ch) per channel. These thermocouple amplifiers provide a CAN output for all temperature measurements. Different junctions are available, the K type is the most common but we can provide any other type, same as with the THNF. Highly compact, it allows the user to simplify wiring by notably eliminating the need for compensation cable. Its compact size also allows for easy integration into production equipment. Our built-in electronics control the compensation of the cold weld as well as the linearisation, making the unit a reliable and precise tool for all your thermocouple type temperature measurements. This product is widely used by vehicle and equipment manufacturers in their test trials.

THNR4x

- Measuring range from -100 to +1800°C
- 100 Hz sampling per channel
- High accuracy digital output
- User configurable CAN parameters
- Operating temp from -40 to +125°C
- IP53

Contact Temperature Sensors

THNM16x

- Measuring range from -100 to +1370°C
- 50 Hz sampling per channel
- High accuracy digital output
- User configurable CAN parameters
- Operating temp from -20 to +100°C
- IP67 & salt spray proof

The THNM16x is an evolution of our thermocouple amplifier range. With an impressive sealing of IP67 and composite Military connector interface makes it the ideal choice for marine and harsh environment applications. Using a lightweight miniature housing incorporating unique patented electronics, the insulated design provides high accuracy temperature measurement over CAN. The unit also allows the user to simplify wiring by eliminating the need for expensive compensation cable.

THAB / THABF

- Digital in-line thermocouple amplifier
- Analog output
- Sampling rate from 5 Hz up to 1 kHz (fast option)
- Compact design
- 0.25% FS accuracy

Originally designed for Military and Aerospace applications, the THAB is compact and allows easy integration into a wiring harness or cable assembly. Compatible with all thermocouple probes and is accurate to 0.25% full scale.

Inertial Sensors

AC-CAP (1 to 3 axis)

- Capacitive accelerometer
- Single, twin and three axis
- Lightweight modular design
- Suitable for harsh environments
- Up to 700 Hz (-3dB)
- Analog output
- ±2 to ±50G (single and twin axis)
- ± 5G, ±10G, ±15G, ±20G (three axis)

Compact & lightweight capacitive accelerometer, but also modular as you can compile several sensors. Available in a wide range of specifications from ±2 to ±50G. The capacitive type is ideally suited to harsher environments and offers a high frequency sampling rate. Analog output.

AC-GAS (1 to 3 axis)

- Gas accelerometer
- Single, twin and three axis
- Lightweight modular design
- Suitable for chassis measurements
- 20 Hz and natural filtering
- Analog or CAN output
- 0.5 to ±10G (single and twin axis)
- 3, 5, or 7G (three axis)

Compact, lightweight and modular gas type accelerometer. Available in a wide range of specifications from 0.5 to ±10G. The gas type is ideally suited to measurements where the natural filtering of the signal is advantageous, such as acceleration of a sprung chassis. Analog output. CAN output option.

ACK (1 to 3 axis)

- Capacitive accelerometer
- Single, twin and three axis
- Lightweight modular design
- Suitable for chassis measurements
- Suitable for harsh environments
- Up to 500 Hz
- Analog output
- ±2 to ±200G

Compact, lightweight and modular capacitive accelerometer. Available in a wide range of specifications from ±2 to ±200G. The capacitive type is ideally suited to harsher environments and offers a wide bandwidth. Analog output.

AC-CAP-PRO (1 to 3 axis)

- Capacitive accelerometer
- Single, twin and three axis
- Lightweight modular design
- Suitable for harsh environments
- Up to 500 Hz
- Analog output
- ±2 to ±200G
- M12-A 5-pin male connector

Compact, lightweight and modular capacitive accelerometer. Available in a wide range of specifications from ±2 to ±200G. The capacitive type is ideally suited to harsher environments and offers a wide bandwidth. Analog output.

GYRP

- Single axis MEMS gyroscope
- Lightweight modular design
- Analog output
- 50 - 100 - 150 °/s
- Frequency: 50 Hz

TEXENSE® use very high quality MEMS gyroscopes to form the basis of our sensors, but the sophistication of the finished unit lies in the electronics. Used in a wide range of applications such as automotive, Formula 1 and space launchers for accurate measurement of yaw rate.

GYRN3-S / GYRN3-S-F

- Three axis MEMS gyroscope
- Built-in standard filter
- Lightweight compact packaging
- User definable range on each channel
- Analog output
- 50 - 100 - 150 - 300 - 900°/s
- Option: filtered version, CAN output

Filtered version of our three axis high quality MEMS-based gyroscope. Wide range of applications such as automotive, Formula 1 and space launchers for complete and accurate measurement of yaw, pitch and roll rates.
Other versions: GYRN3-S-F is available with enhanced filtering options. GYR3F-C is for F1 applications.

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IB3

- 3-axis inertial box
- Mix of gas and capacitive accelerometers
- Analog or CAN output
- ±1, ±2G, ±5G and up to 50G
- Made on request, full custom product

The IB3 inertial box is capable of combining different types of accelerometers into one package. This means each axis can be tailored to a specific measurement type and improves resolution and accuracy.

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IB4

- 4-axis inertial box
- Mix of gas and capacitive accelerometers
- Single axis MEMS gyroscope
- Analog output
- 2-axis gas accelerometer XY: ± 3 or ± 5G
- 1-axis cap accelerometer Z: ± 5 to ± 20G
- 1-axis gyroscope: ± 100 or ± 150°/s
- Made on request, full custom product

The IB4 inertial box is capable of combining different types of accelerometers into one package, this means each axis can be tailored to a specific measurement type and improves resolution and accuracy. The 4th channel is from the addition of a single axis gyroscope for yaw measurement.

Inertial Sensors

IB6 / IB6-CAN

- 6-axis inertial box
- Mix of gas and capacitive accelerometers
- Three axis MEMS gyroscopes
- All axis can be independent ranges
- Analog output / CAN output
- 2-axis gas accelerometer XY: ± 3 or ± 5G
- 1-axis cap accelerometer Z: ± 5 to ± 20G
- 3-axis gyroscope: ± 50, ± 100 or ± 150°/s
- Made on request, full custom product

The IB6 inertial box is capable of combining different types of accelerometers and gyroscopes all into one compact package. The result is a fantastically compact and customisable complete inertial unit. Analog output to comply with FIA F1 regulations on control sensors.

IF6-C

- 6-axis inertial module
- Accurate embedded system
- CAN output
- 3-axis gas accelerometer XY: ± 6G – Z: ± 8G
- 3-axis gyroscope: ±50°/s to ±300°/s
- Gas accelerometer: 20 Hz / gyroscope: 95 Hz
- Digital filters: linear phase / butterworth / elliptic / none

The IF6-C is a 6-axis inertial module with advanced configurable filtering options (within a very compact casing). High sampling rate & CAN output allows a maximised flexibility.

Inertial Sensors

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Aerodynamics Pressure Sensors

DPS-L

- Single channel differential aero pressure sensor
- Lightweight packaging
- 0-5V analog output
- From -350 to +350 mBar

This aero pressure sensor is used for measuring aerodynamics, such as floor, wing and sail pressures. Being unaffected by the force of gravity (g), it allows pressure differences to be measured easily. Miniature packaging ideal for confined installations.

DPS-4W

- 4-channel differential aero pressure sensor
- Lightweight packaging
- 0-5V analog output
- ± 50 to ±1000 mBar

This aero pressure sensor is used for measuring aerodynamics, such as floor, wing and sail pressures. Being unaffected by the force of gravity (g), it allows pressure differences to be measured easily. Miniature packaging ideal for confined installations.

4xPDIF / 8xPDIF

- 4 or 8-channel differential pressure sensor
- Compact housing for aero installations
- CAN output
- From ±50 to ±1000 mBar
- Optional Scanivalve manifold (8xPDIF)
- Optional multiple manifold reference

4-channel / 8-channel differential pressure sensor which brings high accuracy in a super-compact housing using Scanivalve manifold technology to deliver the 4 signals via a CAN output.

16xPDIF / 32xPDIF

- 16 or 32-channel differential pressure sensor
- Compact housing for aero installations
- CAN output
- Two different manifold port options (standard and radial)
- From ±50 to ±1000 mBar
- 1 or 2 optional manifold reference

16-channel differential pressure sensor which brings high accuracy in a super-compact housing via a CAN output. The unit is available with either one or two reference ports. This provides users the option to have 16-differential channels, or 2x 8-differential channel configurations.

8xMPS

- 8-channel differential or absolute pressure sensor
- Class leading accuracy <±1 mBar
- Miniature lightweight housing
- 200Hz ultra fast response time
- CAN output
- Differential from ±50 mBar to ±400 mBar
- Absolute from 600 to 1200 mBar

8-channel differential and absolute pressure sensor which brings ultra high accuracy in a super-compact housing via CAN output. Our flagship pressure sensor offers the end user installation option in harsh confined spaces providing excellent thermal stability.

PI-4 / 6

- Pitot sensor
- Available with 4mm or 6mm integrated tube
- 0-5V analog output
- Tube height: 100-200mm (PI-4) / 150-300mm (PI-6)
- From 50 to 76 mBar
- Other length on request

OPTION: PI-6-TCK: Pitot sensor + air temperature measurement (-40 to +150°C)

High accuracy Pitot tube sensor with built-in electronics and integrated lightweight tube. This Pitot tube sensor is used for measuring air speed by integrating dynamic and static pressures.

Yaw Pitot-V4

- Yaw Pitot sensor
- Air speed and yaw measurement in single compact housing
- 6mm tube
- CAN output
- From 50 to 76 mBar
- Air temperature: +5 to +105°C
- Static pressure: 600 to 1200 mbar
- Yaw angle: -40 to +40°

Yaw Pitot S/T version: Remote tube to aid installation

High accuracy Pitot sensor including static, atmospheric temperature measurement and yaw angle all combined in a single compact housing, making this the perfect sensor for aerodynamic measurements. It outputs directly to any generic CAN system. Different tube heights/angles are available on request to suit on-car installation.

APASS

- Absolute Pressure Aero Skin Sensor
- High accuracy ± 0.5 mBar
- Fast data transfer (140 Hz)
- Wide measurement range: from 260 to 1260 mBar
- Sealed shock proof rugged design
- Very simple to install, even on the most complex surfaces

This light flexible strip is easy to install and can be quickly fitted flush on complex aerodynamic surfaces thanks to its low-profile 3mm thickness.
The APASS offers high performance capabilities with up to 140 Hz data rate and IP67 protection. Using either CAN 2.0 or CAN FD protocol with 2% resolution up to 16 pressure & temperature points on wings, floors, sidepods, splitters and many more.

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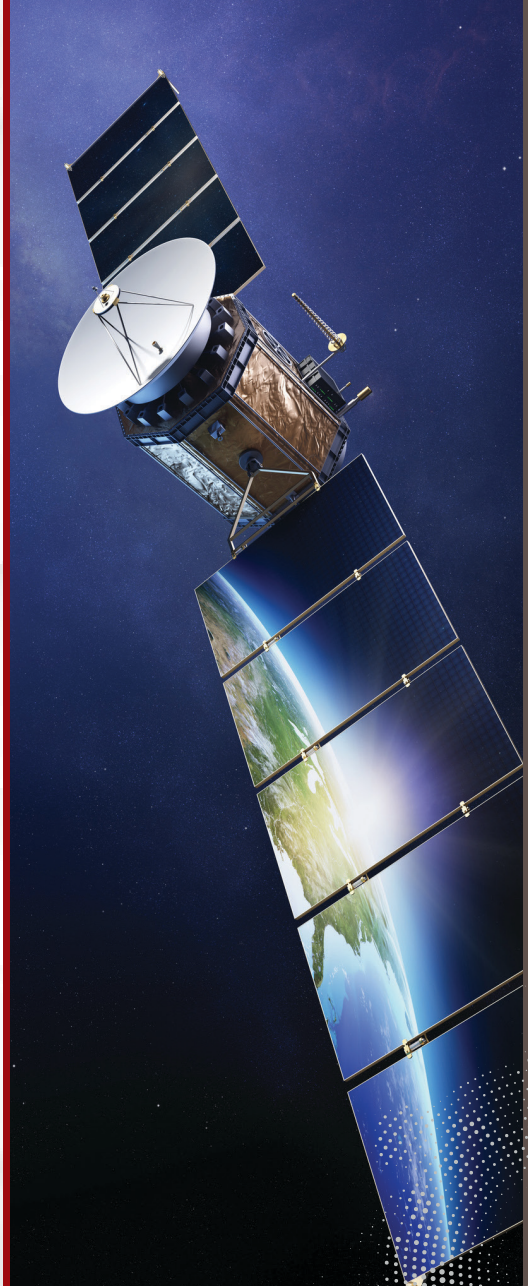
sensors by TEXYS

PTH-CAN

- Absolute pressure, temperature and relative humidity
- High sampling frequency: 100 Hz
- Configurable output frequency: 1, 2, 5, 10, 20 or 100 Hz
- Compact and rugged design: 47,5 x 52,7 x 11 mm
- CAN bus output
- Customizable CAN frame, CAN baud rate and CAN type
- Large power supply range: 6 to 30 V
- Range:
  - Air temperature: -20 to +105°C
  - Absolute pressure: 200 to 2500 mbarA
  - Relative humidity: 0 to 100% RH

The PTH-CAN - 'Pressure Temperature Humidity' - has been extensively tested during our hydrogen fuel cell technology development campaigns.
Its compact and robust aluminium & stainless-steel packaging has been optimised to withstand high relative humidity and high temperature environments.
The PTH-CAN allows the monitoring and control of pressure, temperature, and humidity levels in many potential applications, such as internal combustion engine air intakes, hydrogen fuel cell air circuit or industrial piping.



Aerodynamics Pressure Sensors

Current Sensors

texense sensors by TEXYS

HECS

- Hall effect current sensor
- Analog 0-5V output
- CAN output available on request
- Compact size & lightweight
- Robust housing
- Non-invasive solution
- Current range on request: from 34A to 1300A

Initially developed for aeronautical applications, the HECS was designed to measure current without disconnecting any wiring. Various ranges are available for this highly compact and robust design.

texense sensors by TEXYS

EC-CAN

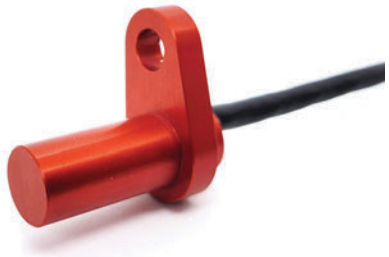
- Electrical conductivity sensor with proven reliability under demanding conditions
- Compact size & easy integration into complex systems and tight spaces
- CAN + Analog output
- Customizable baud rate for optimum communication
- 1 kHz sampling frequency for real-time measurements
- Integrated temperature compensation
- Accuracy: 1% FS
- Measurement ranges: 0-10 and 0-100 µS/cm

The EC-CAN electrical conductivity sensor is a proven solution for measuring electrical conductivity, already successfully used on the dyno of H2-K, our hydrogen fuel cell racing motorcycle proof of concept. Texys Group and its subsidiary H2 Motronics are also proud suppliers of Beyond Aero, providing an H2 powertrain solution and tailor-made sensors, such as the EC-CAN, integrated into our customer's hydrogen aircraft, used under highly demanding conditions. This sensor is a reliable choice for projects requiring high-precision electrical conductivity measurements and suitable for confined spaces. Designed for use in pure water and hydrogen ecosystems.

Speed Sensors

VR-Ø9-B

- Differential Hall effect speed sensor
- Ø9 - parallel or right angle bracket
- Frequency: 20 kHz
- Single or dual output



Compact and reliable differential Hall effect wheelspeed/ frequency sensor with CNC machined housing. 9mm body diameter, 20 kHz and wide range 4-25V supply.

VR-TA-G

- Differential Hall effect speed sensor (GT101 compatible)
- Ø10 - parallel or right angle bracket
- Frequency: 20 kHz
- Single or dual output

The VR-TA-G wheelspeed sensor DHE has been specifically designed to withstand the high temperatures of Indycar, it's also the perfect solution for other harsh environment applications.

texense
sensors by TEXYS

RS-M10WS

- **Differential Hall effect speed sensor**
- **M10**
- **Frequency: 20 kHz**

M10 version of our reliable differential Hall effect wheel speed/frequency sensor. 20 kHz and wide range 4-25V supply.

Speed Sensors

teXense
sensors by TEXYS

Load/Effort Sensors

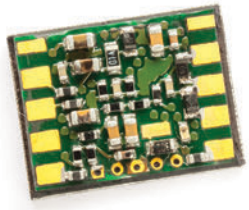
SGDA

- Strain gauging service on customer parts
- Includes TEXENSE® amplifier (XN4, XN5, AMPT-2L, etc.)
- 0-5V analog output

Strain gauge bonding with amplifiers installation. We integrate our amplifier next to the strain gauge bridge (please refer to our XN4 strain gauge amplifier). Over and above the strain gauge bonding and amplification, our service includes temperature compensation cycles and calibration for each manufactured part. Using the very latest equipment allows us to pre-load automated test programmes, which improves work-flow, while also offering a higher accuracy of ± 0.5 percent.

XN4

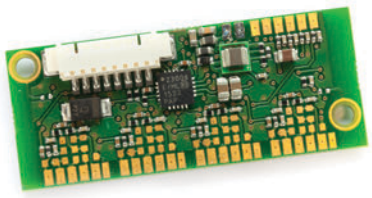
- Digitally controlled strain gauge amplifier
- 0-5V analog and digital output
- User programmable gain and offset
- Temperature compensated
- Dimensions: 13 x 10 x 3,7 mm
- Other versions available: XN4-C (CAN output), XN4-D (dual analog output), XN4-E (enhanced voltage 11-38V supply)



The TEXENSE® XN4 is a PCB analog strain gauge amplifier, high resolution and high speed, with offset and gain adjusted by micro-controller. The XN4 strain gauge amplifier's small size allows it to be bonded close to the gauges, which will reduce noise on the signal. The XN4 strain gauge amplifier is also fully EMI-RFI protected.

XN5

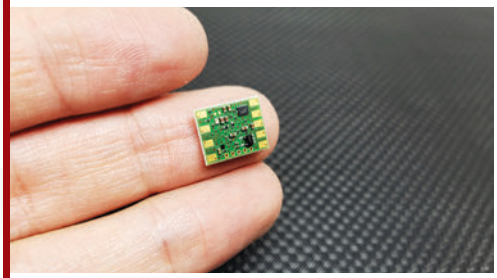
- 4-channel digitally controlled strain gauge amplifier
- 0-5V analog output
- User programmable gain and offset
- Temperature compensated



With the XN5 strain gauge amplifier, it's possible to use a single compact amplifier with 4 separate wheatstone bridge inputs. Gain and offset are programmable even if the XN5 strain gauge amplifier is not linked to strain gauges. Offset is programmable in mV.

XN8

- Miniature digitally controlled strain gauge amplifier
- 0-5V analog and digital output
- User programmable Gain and Offset
- Temperature compensated
- 100 Ohm output impedance
- Dimensions: 13 x 10 x 3,6 mm
- Compensation table values can be edited
- Operating temperature: -40 to +125°C
- Noise reduction



The XN8 is a high-performance miniature digitally controlled strain gauge amplifier, with drift free temperature compensation, and proven electronics inside to withstand extreme conditions. It is an evolution of our iconic, race proven XN4. The XN8 has been designed for many applications including motorsport, aeronautics, and industrial applications. The XN8 delivers performances even higher than the XN4! Our new device also meets very demanding specifications while being fitted on carbon parts.

AMPT-2L

- Digitally controlled strain gauge amplifier
- Housed in a lightweight housing for remote installations
- 0-5V analog or CAN output

Our AMPT-2L product is an XN4 strain gauge amplifier with offset and gain controlled by micro-controller, all packaged in a lightweight compact housing with flylead interface, ideal for integrating into electrical systems.

GST-R-2

- Gear shift device
- Tension/compression sensor
- Miniature lightweight housing
- Digital and analog output
- ±500 to ±2000 N

The TEXENSE® gear shift sensor enables the vehicle's electronics to cut the ignition for gear changes. The range of measuring stresses is from 500 to 2000 N. Digital and analog outputs are available for each product. Typical applications include WRC, WRX, Moto GP, WSBK etc.

TCS

- Tension/compression sensor
- Analog output
- ±1000 N
- Accuracy ± 1%
- Other range on request

TM-Fast

- TEXENSE® Monitoring Fastener solution
- 3 connecting technologies: wired, wireless, removable magnetic connector
- Applicable to any bolt diameter from M4 to M33 bolts
- Specific strain gauge design for installation in the bolt's head
- Accuracy of 1% of full scale on the assembly tension
- Cut-off frequency up to 15 kHz
- EU - US - CN - JAP patented technology

TEXYS Group, specialised in embedded sensors under constrained environments, offers an innovative and patented technology: TM-Fast – instrumented bolts for connected assemblies, designed for the monitoring of tightening loads and preventive maintenance.

Load/Effort Sensors

Signal Conditioning & Converters

A-CAN-HID

- Hub Interface Device
- CAN output
- Waterproof alloy housing
- ASDD006-09PN-HE / ASDD006-09SA-HE / ASDD006-09SB-HE connectors
- 8 analog inputs + 1 digital input + 3-axis accelerometer + 2 LVDT conditioners

Our latest analog to CAN and expansion unit. Specifically designed for tight environments and harsh conditions, this lightweight and compact device includes analog and digital inputs and LVDT conditioners, with an internal 3-axis accelerometer.

A-CAN-DG-V4

- 16-ch configurable CAN converter
- Waterproof alloy housing
- 8STA0-02 connectors
- CAN daisy chain potential
  - 16 analog inputs
  - or 8 analog + RTD inputs
  - or 8 strain gauge inputs
- Up to 250Hz

OPTION: OEM version available

The A-CAN-DG-V4 is configurable to accept a wide range of inputs such as analog, analog + RTD, strain gauge etc. Up to 16 analog channels. Supplied with integrated 8STA0-02 connectors. 8 analog inputs.

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A-CAN-DG-V2.1

- Analog to CAN converter
- Waterproof alloy housing
- Choice of flying lead or Lemo connector
- 8 analog inputs
- Software configurable anti-aliasing filter
- 2 digital inputs
- 1 kHz output
- Sampling:
  - Up to 4kHz/analog channel
  - 200kHz/digital channel
- Option: 0-5 or 0-10V output

Waterproof analog to CAN converter, to easily convert analog and digital signals into CAN. Available either with an integrated Lemo F series connector, of a flying lead. 8 analog and 2 digital inputs.

texense sensors by TEXYS

A-CAN-DG-V1

- Analog to CAN converter
- SUB-D connectors
- 8 analog inputs
- 2 digital inputs
- Up to 500 Hz output
- Sampling:
  - 500 Hz/analog channel
  - 8 kHz/digital channel
- Option: 0-5 or 0-10V output

Industrial style analog to CAN converter, to easily convert analog and digital signals into CAN. 8 analog and 2 digital inputs.

Signal Conditioning & Converters

texense sensors by TEXYS

CTA

- CAN to analog converter
- Waterproof alloy housing
- Choice of flying lead or Lemo connector
- Sampling:
  - CAN to 8 analog outputs
  - 200Hz
- Output range: 0-5 or 0-10V
- Cable option

Waterproof CAN to analog converter, to easily decode CAN from any product and convert into analog outputs. Supplied with an integrated Lemo F series connector. 8 analog outputs.

texense sensors by TEXYS

AMPC

- Charge amplifier with TEDS
- Range: 1 to 10 mV/pC
- Supply voltage: 6 to 30V
- Compact size
- Other range on request

Specifically developed for aeronautical applications, this charge amplifier includes the Transducer Electronic Datasheet (TEDS) protocol.

Signal Conditioning & Converters

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24T12-Int

- 24 to 12V supply interface
- Input 13-36V
- 100mA max output

The 24T12-Int was developed to enable the use of typical 12V automotive sensors in applications such as heavy goods vehicles using 24V systems.

texense sensors by TEXYS

V2-mA

- Analog to 4-20mA converter interface
- Single or 3-channel converter

Our V2-mA converts typical 0-5V and 0-10V analog signals into the 4-20mA standard used in industry.

Signal Conditioning & Converters

Wireless Systems

GenWM

- Generic Wireless Master receiver
- CAN output
- Auto-tuning tri-band RF
- Can pair with up to 22 wireless sensors
- 868/902/920MHz
- Sampling capability up to 200Hz

Used for all our wireless products. Up to 22 sensors can be paired with it, with speeds up to 200Hz. The RF system includes a completely secure key to protect data.

Compatible with:

THN2xWS4

THN4xWS4-B

IRN8WS4

ANA2WS4

WTS

8xPDIFFW

IRN-RCWS4

4xPDIFFW

ANA2WS4

- 2-ch analog to wireless hub
- TEXENSE® secure wireless tri-band RF
- Pairs to GenWM receiver
- Sampling capability up to 200Hz

The wireless analog hub can accept two analog inputs and transmit our TEXENSE® secure wireless tri-band RF at sampling rates of up to 200Hz.

IRN8WS4

- Wireless 8-ch tyre temperature sensor
- 2019 AUTOSPORT Show Product Showcase award-winning design
- TEXENSE® secure wireless tri-band RF
- Pairs to GenWM receiver
- Range from 0 to +200°C

Wireless version of our 8-ch tyre temperature sensor enables remote mounting of the sensor with no loss of data resolution. The strong RF system allows easy mounting in any location on the vehicle, such as the front wing, as used by F1 Teams. All other features are the same as the standard wired version.

THN2xWS4 / THN4xWS4-B

- Wireless 2-ch or 4-ch thermocouple amplifier
- TEXENSE® secure wireless tri-band RF
- Pairs to GenWM receiver
- K type from -100 to +1250°C

Wireless 2-ch or 4-ch thermocouple amplifier enables easy and fast temperature tests without the need for wiring. Works with any commercial available K type probe and can be built in specification to cover temperatures from -100 to +1250°C.

Wireless Systems

IRN-RCWS4

- Flexible IR tyre temp sensor
- 3-8 sensing heads with adjustable distance
- TEXENSE® secure wireless tri-band RF
- Pairs to GenWM receiver
- Range from 0 to 200°C

Wireless version of our flexible strip tyre temperature sensor which enables remote mounting of the sensor with no loss of data resolution. The strong RF system allows easy mounting in any location on the vehicle, even inside the tyre. All other features are the same as the standard wired version.

4xPDIFFW / 8xPDIFFW

- Wireless 4-ch / 8-ch differential pressure sensor
- TEXENSE® secure wireless tri-band RF
- Pairs to GenWM receiver
- -350 to +350 mBar
- 0.1 mBar resolution
- 100Hz

4-channel version

Our 4 or 8-channel wireless differential pressure sensors bring high accuracy in a super-compact housing over our wireless network. This allows a fast solution for pressure tapping without the associated cabling.

8-channel version

WTS

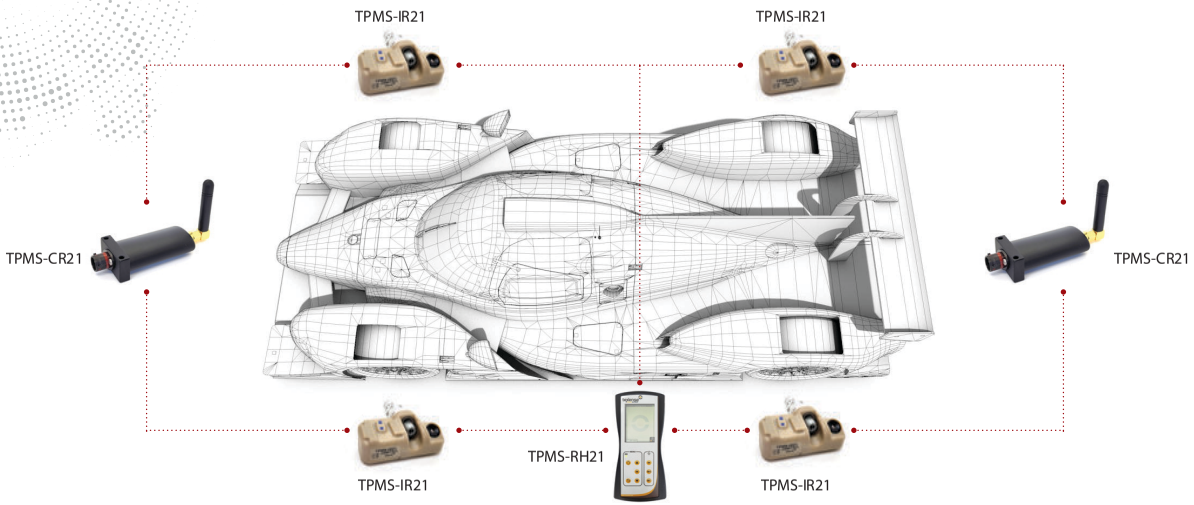
- Wireless Torque Sensor
- Can be used on driveshafts, propshafts, steering columns, etc.
- Pairs to GenWM receiver
- Sampling capability up to 200Hz

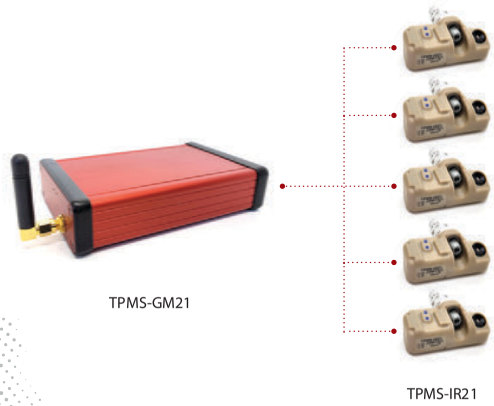
The WTS torque system can be fitted to most shaft types and uses specialist strain gauges to accurately measure the shaft torque. The RF is transmitted to our TEXENSE® secure wireless tri-band RF at sampling rates of up to 200Hz.
TEXYS is one of the few to master the complete loop: strain gauge fitting, signal conditioning and wireless communication.

INF-BS

- Bluetooth Smart low energy infrared temperature sensor
- Range from 0 to +200°C
- Replaceable window
- Accuracy 1-2% FS

Dedicated to club racers, the INF-BS is designed with an easy installation in mind and getting data through a mobile device (a specific application has been developed).





GARAGE MONITORING

TPMS-IR21

- 5 key areas for tyre analysis measurements: high precision pressure, rim temperature, internal temperature, relative humidity, and inner liner temperature
- Unique rim temperature feature provides a true rim temperature measurement via contact patch
- Carcass temperature measured through a customisable infrared system, with 5 channels that can be selected among a 14-point calibrated array using the handheld receiver
- HD version: carcass temperature measured through all 14 infrared channels
- Corner recognition system capability
- Replaceable battery

TEXENSE® is sole supplier of TPMS in FIA Formula E from 2023 onwards and is widely used in WEC, WRC, and also chosen by tyre manufacturers.

TPMS-IR21AM

- Specifically designed for Motorcycles, with radial installation
- 5 key areas for tyre analysis measurements: high precision pressure, rim temperature, internal temperature, relative humidity, and inner liner temperature
- Unique rim temperature feature provides a true rim temperature measurement via contact patch
- HD version: carcass temperature measured through 14 infrared channels
- Corner recognition system capability
- Replaceable battery

The TPMS developed by TEXENSE® has been exclusively used since 2020 in FIA Formula 2, Formula 3 and since 2023 in Formula E. It is also widely used in World Endurance and Rally championships and chosen by tyre manufacturers. Leveraging on our expertise with our proven TPMS solution, we have developed a specific TPMS destined for Motorcycles.

TPMS-RS21

- Single-seater, World Endurance & GT race proven device
- Tyre Pressure Monitoring System
- Measurements: high precision pressure, rim temperature, internal tyre temperature, relative humidity
- Great rim compatibility
- Replaceable battery

TEXENSE® is sole supplier of TPMS in both FIA Formula 2 & Formula 3 championships since 2020, and is widely used in World Endurance and Rally championships, and also chosen by tyre manufacturers.

TPMS-RS21AM

- Specifically designed for Motorcycles, with radial installation
- Single-seater, World Endurance & GT race proven device
- Tyre Pressure Monitoring System
- Measurements: high precision pressure, rim temperature, internal tyre temperature, relative humidity
- Great rim compatibility
- Replaceable battery

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TPMS-CR21

- Specific TPMS Car Receiver
- CAN output
- 433MHz
- External antenna

TPMS-WR21

- Specific TPMS Wheel Receiver
- CAN / CAN FD output
- 433MHz
- Automatic corner recognition
- Integrated antenna

texense sensors by TEXYS

TPMS-RH21

- Specific TPMS touchscreen Remote Handheld
- 433MHz receiver
- Enables wireless configuration of TPMS sensors (corner location, tyre types, power management thresholds etc.)
- Can easily read TPMS measurements remotely, even after tyre fitting

texense sensors by TEXYS

TPMS-GM21

- Specific TPMS Garage Monitoring system
- 433 MHz receiver
- External antenna
- Live data streaming to Excel sheet for analysis inside the garage

OPTEL-Texys is our brand of contactless optical fibre high-speed sensors. As a specialist for over 60 years in non-invasive optical fibre sensors, OPTEL-TEXYS has acquired a worldwide recognition for its high-speed sensing technology in the rotating machinery and turbomachines market.

OPTEL-TEXYS provides solutions for most OEMs and Tier 1 in the transport industry (automotive, aeronautics, space and marine), energy and civil engineering (e.g. heavy industries, mining operations), as well as heavy industries and mining operations. Our plug & play sensors are a natural extension of the customers' data acquisition system.

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www.optel-texys.com

LGS by TEXYS is our brand of FBG-based optical sensors. Light Guide Solutions (LGS) was founded in 2007 by Dr. Bouamra (expert in photonics science), specialising in the development and manufacture of systems based on Fibre Bragg Grating (FBG) technology for various applications (industry, civil engineering, and energy).

Our global know-how covers main types of optical fibre sensors based on the Fibre Bragg Grating technology. With an innovative approach and in-house manufacturing capabilities, LGS by TEXYS provides customised and innovative turnkey solutions with optimised costs.

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H2 Motronics
ADVANCED RESEARCH

H2 MOTRONICS is a technical design office dedicated to specific projects in electronics, mechatronics and mechanical engineering.
Leveraging the high level of experience & expertise of parent company Texys, H2 Motronics focuses on engineering consultancy, offering design and development of various technical solutions for all types of industries, since 2019. H2 Motronics acts as a true architect of your tailor-made projects, managing projects from specifications through to delivery of the finished product and integration into your systems.
H2 Motronics has developed H2K, a hybrid hydrogen-electric powertrain, along with bespoke fuel cell and energy management software, as well as custom embedded sensors. H2K is our gateway towards light mobility, for roads, rivers and skies.

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rms
strain gauge services

REMOTE MECHANICAL SENSING, LLC, also known as RMS, is our US-based subsidiary dedicated to strain gauge services. When you are looking to measure strain on your vehicle or structure, RMS is there to instrument your mechanical parts with strain gauges. Thanks to our solid experience using custom gauges, we offer our services for a wide array of applications in various fields going from Motorsport to Aeronautics, Military and Medical, to name a few.

Backed by our team of Engineers, continuously enhancing our cutting-edge amplifiers & electronics, we make sure to have a thorough understanding of your projects and applications in order to check and measure deformations of your mechanical parts over time.

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Notes

Units conversion tables

Table: Multiples and Submultiples of SI units

Prefix	Symbol	Multiplying Factor
exa	E	10^{18} 1 000 000 000 000 000 000
peta	P	10^{15} 1 000 000 000 000 000
tera	T	10^{12} 1 000 000 000 000
giga	G	10^{9} 1 000 000 000
mega	M	10^{6} 1 000 000
kilo	k	10^{3} 1 000
hecto*	h	10^{2} 100
deca*	da	10 10
deci*	d	10^{-1} 0.1
centi	c	10^{-2} 0.01
milli	m	10^{-3} 0.001
micro	u	10^{-6} 0.000 001
nano	n	10^{-9} 0.000 000 001
pico	p	10^{-12} 0.000 000 000 001
femto	f	10^{-15} 0.000 000 000 000 001
atto	a	10^{-18} 0.000 000 000 000 000 001

* these prefixes are not normally used

Table: Length Units

Millimeters	Centimeters	Meters	Kilometers	Inches	Feet	Yards	Miles
mm	cm	m	km	in	ft	yd	mi
1	0.1	0.001	0.000001	0.03937	0.003281	0.001094	6.21e-07
10	1	0.01	0.00001	0.393701	0.032808	0.010936	0.000006
1000	100	1	0.001	39.37008	3.28084	1.093613	0.000621
1000000	100000	1000	1	39370.08	3280.84	1093.613	0.621371
25.4	2.54	0.0254	0.000025	1	0.083333	0.027778	0.000016
304.8	30.48	0.3048	0.000305	12	1	0.333333	0.000189
914.4	91.44	0.9144	0.000914	36	3	1	0.000568
1609344	160934.4	1609.344	1.609344	63360	5280	1760	1

Table: Area Units

Millimeter square	Centimeter square	Meter square	Inch square	Foot square	Yard square
mm^2	cm^2	m^2	in^2	ft^2	yd^2
1	0.01	0.000001	0.00155	0.000011	0.000001
100	1	0.0001	0.155	0.001076	0.00012
1000000	10000	1	1550.003	10.76391	1.19599
645.16	6.4516	0.000645	1	0.006944	0.000772
92903	929.0304	0.092903	144	1	0.111111
836127	8361.274	0.836127	1296	9	1

Table: Volume Units

Centimeter cube	Meter cube	Liter	Inch cube	Foot cube	US gallons	Imperial gallons	US barrel (oil)
cm^3	m^3	ltr	in^3	ft^3	US gal	Imp. gal	US brl
1	0.000001	0.001	0.061024	0.000035	0.000264	0.00022	0.000006
1000000	1	1000	61024	35	264	220	6.29
1000	0.001	1	61	0.035	0.264201	0.22	0.00629
16.4	0.000016	0.016387	1	0.000579	0.004329	0.003605	0.000103
28317	0.028317	28.31685	1728	1	7.481333	6.229712	0.178127
3785	0.003785	3.79	231	0.13	1	0.832701	0.02381
4545	0.004545	4.55	277	0.16	1.20	1	0.028593
158970	0.15897	159	9701	6	42	35	1

Table: Mass Units

Grams	Kilograms	Metric tonnes	Short ton	Long ton	Pounds	Ounces
g	kg	tonne	shton	Lton	lb	oz
1	0.001	0.000001	0.000001	9.84e-07	0.002205	0.035273
1000	1	0.001	0.001102	0.000984	2.204586	35.27337
1000000	1000	1	1.102293	0.984252	2204.586	35273.37
907200	907.2	0.9072	1	0.892913	2000	32000
1016000	1016	1.016	1.119929	1	2239.859	35837.74
453.6	0.4536	0.000454	0.0005	0.000446	1	16
28	0.02835	0.000028	0.000031	0.000028	0.0625	1

Table: Pressure Units

Bar	Pound/square inch	Kilopascal	Megapascal	Kilogram force/ centimeter square	Millimeter of mercury	Atmospheres
bar	psi	kPa	MPa	kgf/cm^2	mm Hg	atm
1	14.50326	100	0.1	1.01968	750.0188	0.987167
0.06895	1	6.895	0.006895	0.070307	51.71379	0.068065
0.01	0.1450	1	0.001	0.01020	7.5002	0.00987
10	145.03	1000	1	10.197	7500.2	9.8717
0.9807	14.22335	98.07	0.09807	1	735.5434	0.968115
0.001333	0.019337	0.13333	0.000133	0.00136	1	0.001316
1.013	14.69181	101.3	0.1013	1.032936	759.769	1

Table: Speed Units

Meter/second	Meter/minute	Kilometer/hour	Foot/second	Foot/minute	Miles/hour
m/s	m/min	km/h	ft/s	ft/min	mi/h
1	59.988	3.599712	3.28084	196.8504	2.237136
0.01667	1	0.060007	0.054692	3.281496	0.037293
0.2778	16.66467	1	0.911417	54.68504	0.621477
0.3048	18.28434	1.097192	1	60	0.681879
0.00508	0.304739	0.018287	0.016667	1	0.011365
0.447	26.81464	1.609071	1.466535	87.99213	1

Table: Torque Units

Newton meter	Kilogram force meter	Foot pound	Inch pound
Nm	kgfm	ftlb	inlb
1	0.101972	0.737561	8.850732
9.80665	1	7.233003	86.79603
1.35582	0.138255	1	12
0.112985	0.011521	0.083333	1

Table: Temperature Conversion Formulas

Degree Celsius (°C)	(°F - 32) x 5/9
	(K - 273.15)
Degree Fahrenheit (°F)	(°C x 9/5) + 32
	(1.8 x K) - 459.67
Kelvin (K)	(°C + 273.15)
	(°F + 459.67) ÷ 1.8

Notes

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