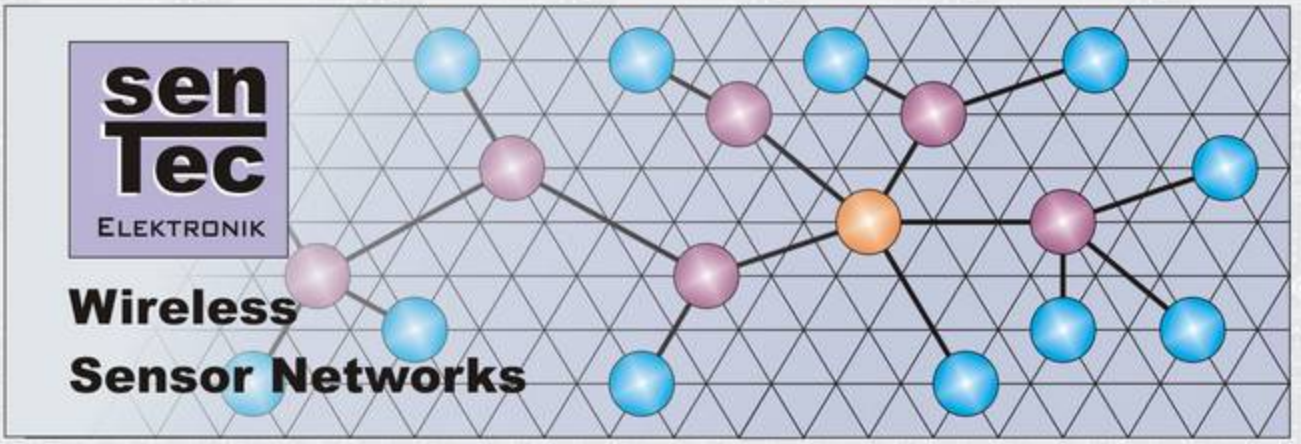
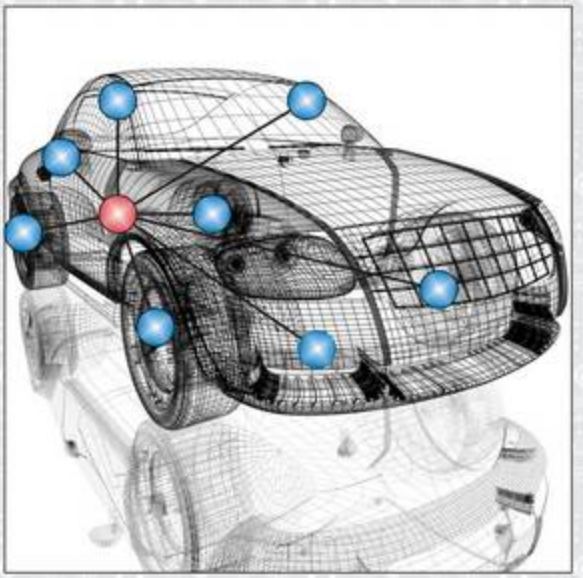


Wireless Sensor Network Components for Automotive Measurements

Wireless networks can be used for sensor data transmission in automotive test scenarios. The wireless sensors are small, easy to install, reliable and self-configuring. Every data transmission is secured via check sum and acknowledged with a handshake.

The receiver can be used as a data logger or it can present the data via analog outputs, USB or CAN.

Wireless technology allows the mounting of sensors on moving and difficult to access places. Our temperature sensors can be mounted directly on the wheels of the car to measure the temperature of the brake discs without any contact rings. Moreover, based on our proven wireless network technology we are able to design your individual sensor and transmitter solution.



Wireless Sensor Network Technology

- Based on standard IEEE 802.15.4
- 2.4 GHz ISM band, license free operation
- 16 channels with intelligent frequency agility
- Direct sequence spread spectrum technology
- High noise immunity and interference avoidance
- +10dBm transmit power and -96dBm sensitivity
- Radio link distance up to 1000m in free space
- Distance can be extended by the use of routers
- Up to 64 wireless nodes per network
- Star and cluster tree network topologies
- Easy to install, self-configuring network
- Failsafe monitoring of every network node
- Several networks can co-exist in the same area
- Configurable transmission interval: 100ms - 1h
- Handshake for guaranteed data delivery

Wireless Sensor Network Components for Automotive Measurements

	**Disc Brake Thermocouple Radio Transmitter** Measurement range: 0°C to 1000°C Up to 4 thermocouple sensors type K per transmitter Teflon housing, robust construction for outboard use on car wheels Two Lithium batteries, life time up to 2 months (one transmission per second)
	**Climate (Temperature and Humidity) Sensor and Transmitter** Temperature range: -20°C to +80°C, resolution: 0.1°C, humidity 0% to 95% RH Plastic housing, size: 10cm x 6.5cm x 3.5cm, protection class IP 65 Two AA Lithium batteries, life time up to 6 years (one transmission per minute)
	**Conduit / Heating Pipe Attachment Temperature Sensor and Transmitter** Temperature range: 0°C to +120°C, resolution: 0.1°C Plastic housing, size: 10cm x 6.5cm x 3.5cm, protection class IP 65 Two AA Lithium batteries, life time up to 6 years (one transmission per minute)
	**Universal Configurable Wireless Transmitter Box** Suitable for different types of sensors: thermocouples, thermistors and others Plastic housing, size: 10cm x 6.5cm x 3.5cm, protection class IP 65 Two AA Lithium batteries, life time up to 6 years (one transmission per minute)

	**Receiver with USB Interface and 4 Analog Voltage Outputs 0–10V** USB B connector as data output and PC connection Options available: CAN measurement bus, SD card interface for data storage Supply voltage: 9–35V (can be powered from stand-alone car battery) Metallic housing, size: 10.5cm x 10.5cm x 4cm External antenna connected via SMA connector *)
	**USB Box Receiver** USB B connector as data output and PC connector, powered via USB Metallic housing, size: 8cm x 4cm x 2.5cm External antenna connected via SMA connector *)
	**DIN Rail Receiver** RS232 interface and RS485 interface for connection to automation bus 2 relay switched output contacts, 4 analog voltage outputs 0–10V Supply voltage: 9–35V, pushbutton and LED DIN rail mount housing, size: 9cm x 3.5cm x 6cm External antenna connected via SMA connector *)

*) Different antenna options or extension cables can be ordered separately.

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senTec Elektronik is a Member of the Freescale Design Alliance Program.

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