



Sense Freely
Self-Powered
Wireless-Batteryless
Sustainable Solution for Industry 4.0

WIRELESS TEMPERATURE SENSOR



ESCOM Enhanced Solutions

The Future of Wireless - Batteryless Energy Harvesting Sensing Technologies

ESCOM-ES is the R&D center founded in 2018 and owned by ESCOM Power Plants Engineering Services. We are focusing on and developing Self Powered - Wireless - Batteryless Sensors which is eliminating all wiring and cabling cost and workmanship which can reach many kms in a simple industrial plant. And offering smart and green solutions getting rid of batteries and cables...

No Battery - No Cable - No Wiring

ESCOM-ES offers a wide range of domestic and industrial sensing systems that can be used in harsh environment harvests its own power from ambient sources such as motion, temperature, sunlight, magnetic fields, or where energy is available to scavenge...

Self-powered, wireless sensing technology, combined with engineering expertise and rich analytics provide real-time information for our customer's needs...



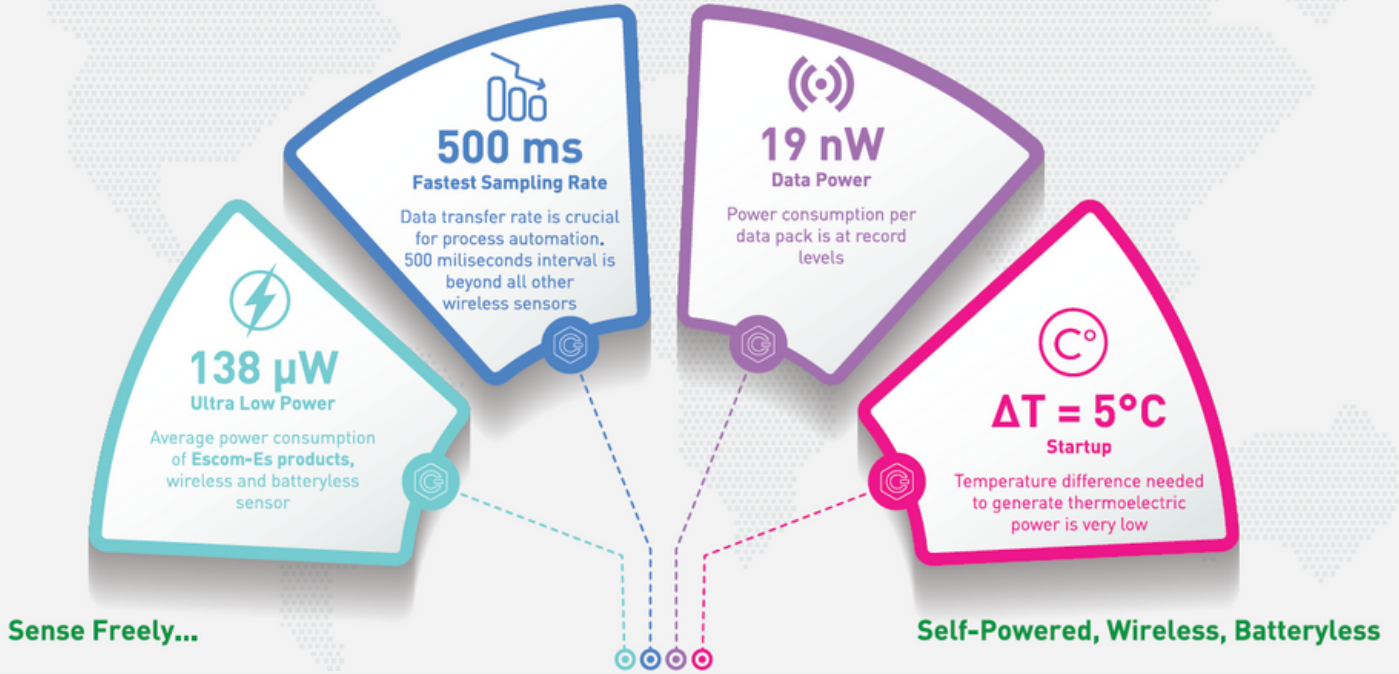
SUSTAINABLE MEASUREMENT TECHNOLOGY

Industry-specific Solutions

Temperature is an important parameter for every industry. The quality and speed of temperature measurement directly affects the functioning of the industry. There is a temperature difference in almost every part of a facility. WiT-es wireless batteryless temperature sensors are very suitable to use wherever there is a temperature difference.

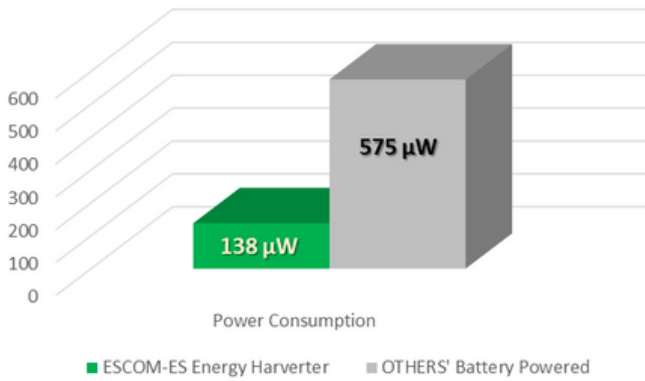


ENERGY HARVESTING for the FREEDOM of SENSORS

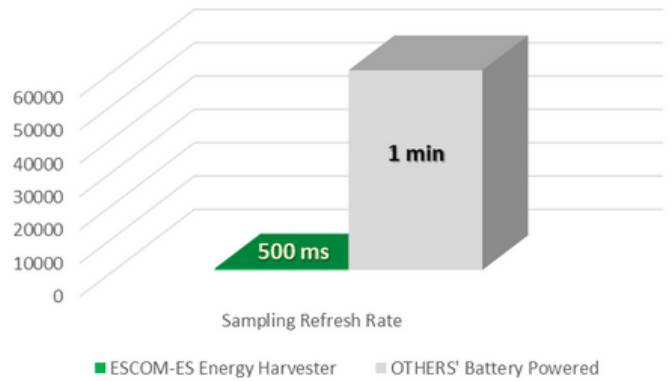


• Tested and approved by Niğde OHU Engineering Faculty

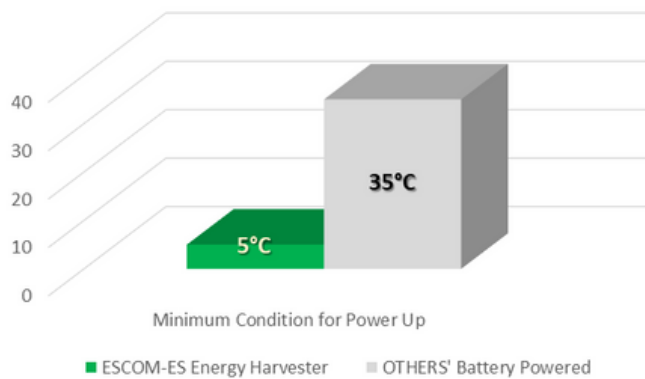
Ultra Low Power (μ W)



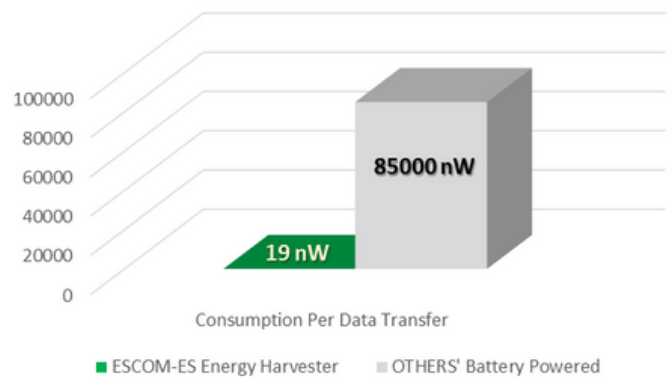
Sampling Rate (ms)



Min ΔT ($^{\circ}\text{C}$)



Power Cons. per Data (nW)



WiT-es IN THE FIELD

Various sensors are tested in the power plants operated by ESCOM Power Plants Engineering Services. ESCOM-ES R&D center designs, develops and manufactures these sensors. WiT-es, one of ESCOM-ES's most innovative and functional products, was assembled and tested in one of the mentioned power plants. According to the test results, WiT-es, which works very efficiently, has been developed to be used in many industries.





HOW TO GET ENERGY

Harvesting Energy

Harvesting energy is the production of its own energy by using the difference between the temperature of the liquid in the pipe where the product is located and the temperature of the environment itself. Peltier is used while doing this. Peltier is a component made of ceramic that is hot on one side and cold on the other. This component, which generates energy from the temperature difference, is placed inside the product.

TEMPERATURE MEASUREMENT

Instant and Continious

Accurate temperature measurement is critical in industrial processes. Reliable and high quality measuring devices are required for these measurements. ESCOM-ES continues its efforts to always be at the top of reliability and quality. WiT-es is a product that demonstrates its quality with instant and continuous temperature measurement. It works wirelessly and without batteries. It has dual sensors. It works as a backup. When one of the sensors fails, the other sensor is used.



Cooler Case

Cooler case is a component with a cooler and inside a cap. The cooler is in contact with the peltier and is used to prevent overheating.

Circuit Box

It is the box where all the electronic embedded circuits and connections of the product are located.

Energy Harvester

A temperature difference is created between the two surfaces and electricity is produced. This is the part that harvests the energy.

Sensing Point

The device houses a sensor within a stainless steel rod for direct fluid contact. The sensor offer enhanced reliability and accuracy, with one acting as a backup and the option for simultaneous operation. This design showcases ESCOM Enhanced Solutions' dedication to providing advanced, dependable temperature monitoring solutions.

TECHNICAL SPECIFICATIONS

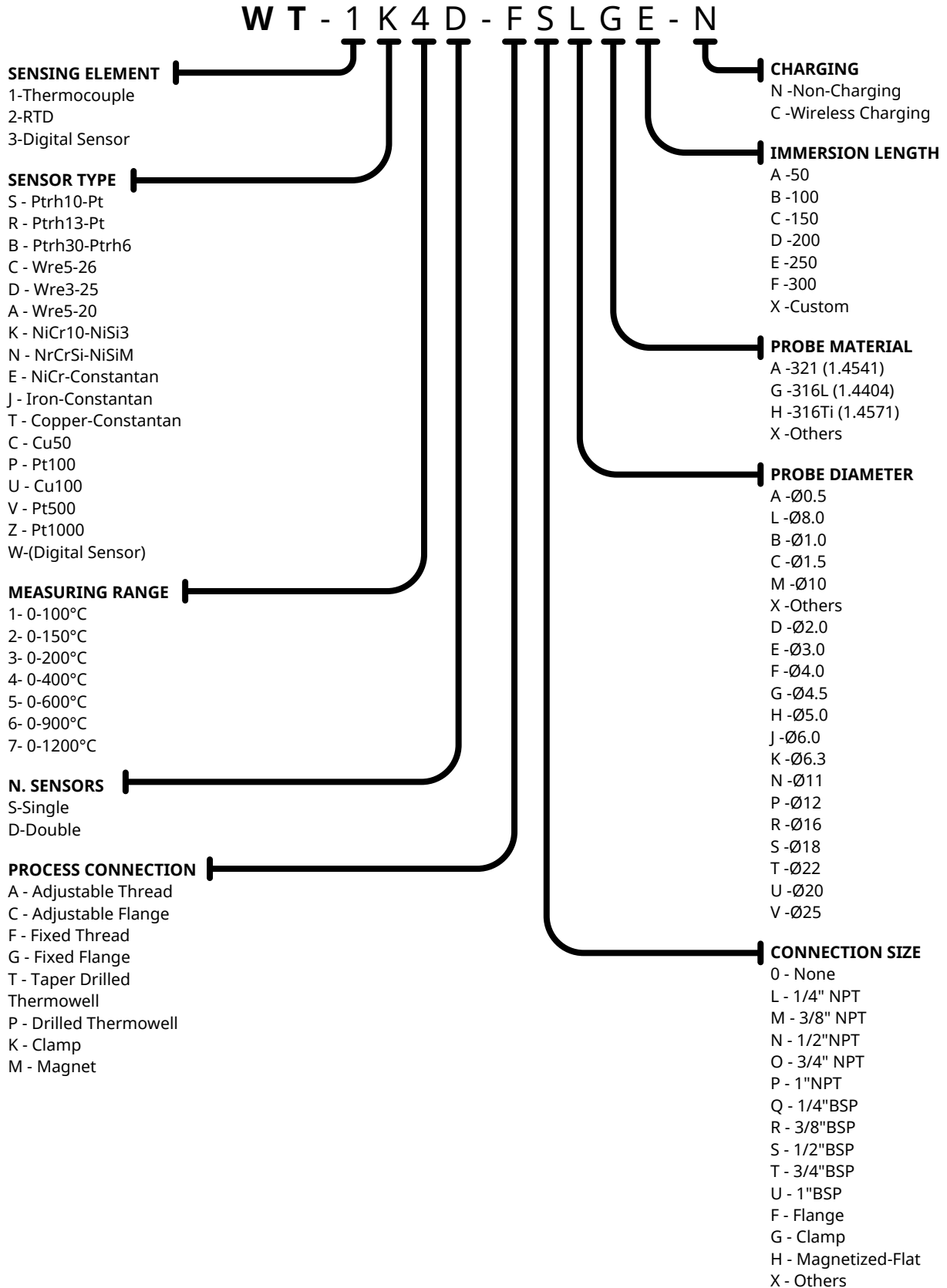
Sensor Types	RTD	Thermocouple	Digital Sensor
Measuring Ranges	-193°C / +100°C -193°C / +150°C -193°C / +200°C -193°C / +400°C -193°C / +600°C	0°C / +900°C 0°C / +1200°C	-55°C / +150°C
RF Transmission Power	+8dBm		
Sampling Refresh Rate	500ms		
Data Transmission Protocol	BLE		
Power Consumption	138 μ W		

Innovative Energy Harvesting for the Enhanced Industrial Sensing Solutions

Our innovative energy harvesting, *ultra low power consumption*, and wireless data transmission technologies are paving the way for a smarter, more connected future. Explore our cutting-edge solutions and revolutionize the way you collect and process data in your industrial systems



Order Code Coding System



COMPLEMENTARY EQUIPMENTS

For Wireless Control Systems

- Temperature
- Wireless Charging



Wi-CaM

Wireless Charging and Monitoring

Wi-CaM is a versatile wireless charging and monitoring solution for self-powered sensors like WiT-es and WiPr-es. It enables efficient initial commissioning and energy harvesting when fluid temperature is insufficient, charges the sensor in just 2 seconds, and offers real-time monitoring.

- Wireless Gateway



Wi-Gate

Wireless Gateway

Wi-Gate is a wireless gateway for WiT-es and WiPr-es sensors, transmitting data to PLC and SCADA systems. It supports RS485, Modbus, Profibus, Profinet, Wi-Fi, and BLE communication, with a 30dBm transmission power and capacity for 128 MAC addresses, offering a reliable and scalable solution for wireless sensing applications.

- Wireless Control



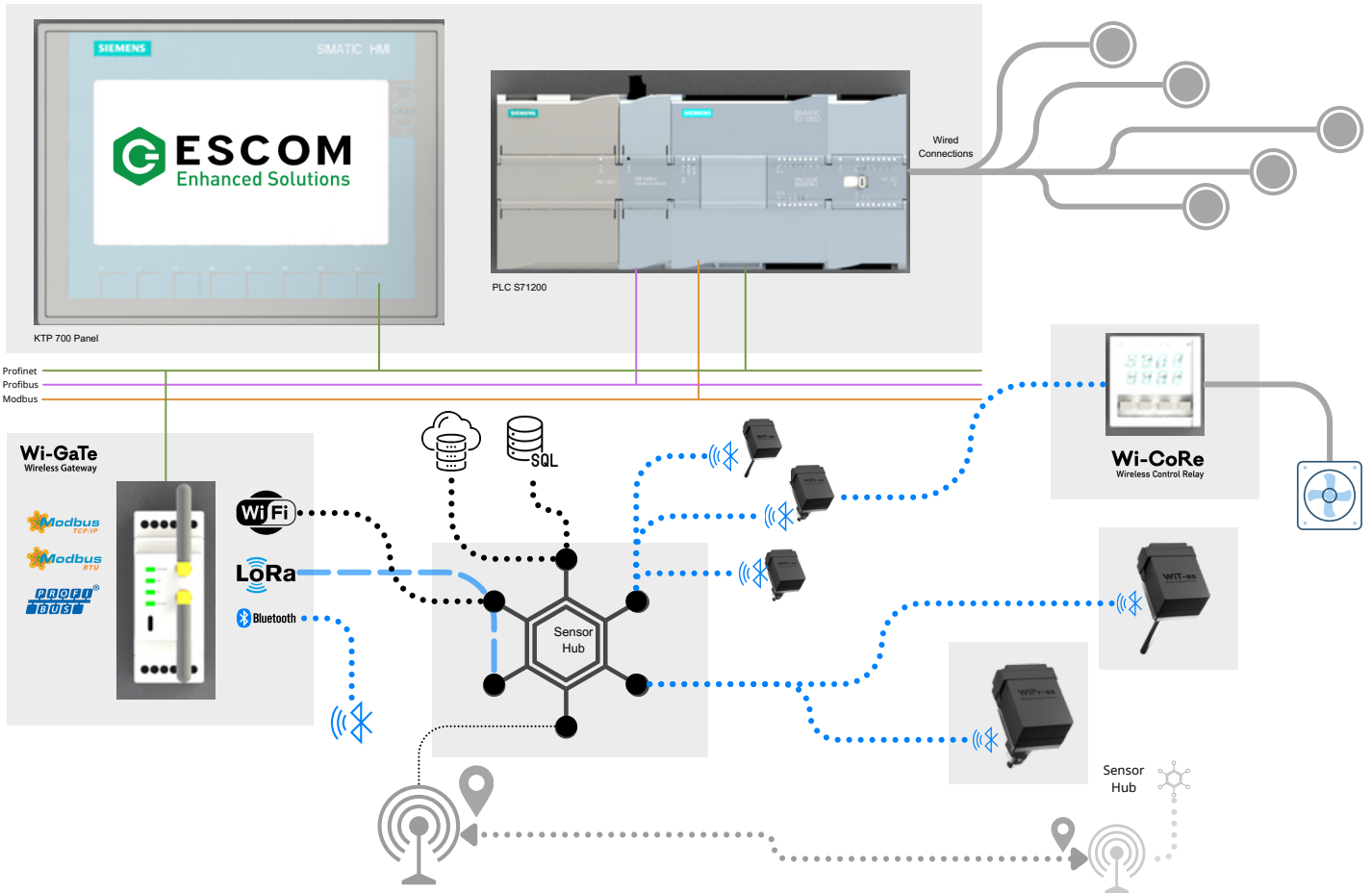
Wi-CoRe

Wireless Control Relay

Wi-CoRe is a wireless control relay designed to work with WiT-es sensors, switching according to the received temperature information. It features adjustable upper and lower limits for set and alarm values, a minimum 500ms sampling time, a 220V supply voltage, a 0-20mA output, and two NO/NC relay outputs (10A).

INDUSTRIAL IoT

Wireless BatteryLess Sensors & Network





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