

# Wireless Probe Temperature Sensor TES-21/TES-22

data sheet



## FEATURES

- › Easy to install and commission
- › Accurate temperature sensor: +/- 0.2°C
- › Wide temperature range: -20°C to + 60°C
- › Various temperature probes available
- › Battery life greater than 10 years (30 minute reporting interval)
- › On-board data logging of up to 10,000 data points
- › Waterproof polycarbonate enclosure
- › Fully wireless communications
- › Wireless range up to 300m (LoS)
- › Dimensions (LxWxH): 144mm x 112mm x 35mm
- › Self-healing mesh network
- › 2.4GHz ISM band ZigBee® wireless radio
- › Fully secure communications: 128-bit AES encryption
- › Over-the-air software upgrade capability



## INTRODUCTION

The TES-21 fully wireless, accurate Probe Temperature Sensor can record temperature data at predefined intervals and make this data available to users via EpiSensor's NGR-30 Smart Gateway for use in environmental monitoring and energy management applications. Single (TES-21) and dual probe (TES-22) versions are available.

The temperature sensor is housed in a waterproof polycarbonate enclosure so it can be deployed in a wide range of harsh environments. The on-board lithium battery is designed to last up to 10 years (at 30 minute reporting interval).

## APPLICATIONS

The TES-21 can be used for monitoring probe temperature in pharmaceutical and manufacturing plants, data centers, food processing and brewing industries, hotels, and offices, as well as for any manufacturing processes that require temperature-controlled environments.

The dual probe version is particularly useful for monitoring temperature in liquids or in areas where a temperature differential is of interest, such as the inlet and exhaust air temperature in a server cabinet or the flow and return temperatures in heating and cooling systems.



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## SPECIFICATIONS



Dimensions for TES-21 / TES-22 Wireless Probe Temperature Sensor

Sensor	Normal Temperature Range Full Temperature Range Accuracy (normal range) Accuracy (full range) Temperature Resolution	depends on probe used; see Ordering Information depends on probe used; see Ordering Information +/- 0.2°C +/- 0.4°C 0.1°C
Battery	Lifetime Type	up to 10 years (30 min reporting interval) Lithium Thionyl Chloride (permanent)
Certification	Certification	CE
Wireless Technology	Radio Technology Radio Frequency Channels Max Tx Power Rx Sensitivity Data Rate	ZigBee Pro 2.4 Ghz ISM Band 16 Channels (11 - 26) +3dBm (+5dBm in Boost Mode) -98dBm @ 1% Packet Error Rate up to 250 kbits/sec
Wireless Range	Indoor Range Outdoor Range	up to 50m up to 300m (direct line of sight)
Security	Encryption	128-bit AES Encryption
Physical	Dimensions (LxWxH) Weight Mounting Enclosure	144 x 112 x 35 mm 150g Wall Mounting Holes Polycarbonate, Waterproof (IP67)
Operating Conditions	Operating Temperature Operating Humidity	-40°C to +85°C up to 80% (non-condensing)



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## ORDERING INFORMATION



TES-21-w1.5  
Waterproof, Plastic,  
1.5m Length



TES-21-w0  
Waterproof, Plastic,  
Short Probe



TES-21-p2.0  
Stainless Steel, Pipe  
Probe, 2.0m Length



TES-22-w1.5  
Dual Waterproof, Plastic,  
1.5m Length



TES-22-p2.0  
Dual Stainless Steel,  
Pipe Probe, 2.0m Length

Probe Options for TES-21 / TES-22 Wireless Probe Temperature Sensor

Ordering Codes	TES-21-w1.5 TES-21-w0 TES-21-p2.0 TES-22-w1.5 TES-22-p2.0	Single Waterproof, Plastic, 1.5m length Single Waterproof, Plastic, Short Probe Single Stainless Steel, Pipe Probe, 2.0m Dual Waterproof, Plastic, 1.5m length Dual Stainless Steel, Pipe Probe, 2.0m length
Option 1	Product Code Type Application Normal Temperature Range Full Temperature Range	TES-21-w1.5 Waterproof, Plastic, 1.5m length Liquids, pharmaceuticals, warehouses -20°C to +60°C -40°C to +85°C
Option 2	Product Code Type Application Normal Temperature Range Full Temperature Range	TES-21-w0 Waterproof, Plastic, Short Probe Outdoor ambient temperature monitoring -20°C to +60°C -40°C to +85°C
Option 3	Product Code Type Application Normal Temperature Range Full Temperature Range	TES-21-p2.0 Stainless Steel, Pipe Probe, 2.0m length Pipe temperature monitoring -20°C to +60°C -40°C to +85°C
Option 4	Product Code Type Application Normal Temperature Range Full Temperature Range	TES-22-w1.5 Dual Waterproof, Plastic, 1.5m length Liquids, pharmaceuticals, data centers, weather -20°C to +60°C -40°C to +85°C
Option 5	Product Code Type Application Normal Temperature Range Full Temperature Range	TES-22-p2.0 Dual Stainless Steel, Pipe Probe, 2.0m length Pipe temperature differential monitoring -20°C to +60°C -40°C to +85°C