// ZTS-10, ZTS-11, ZTS-12

Wireless Environmental Sensor

// Introduction

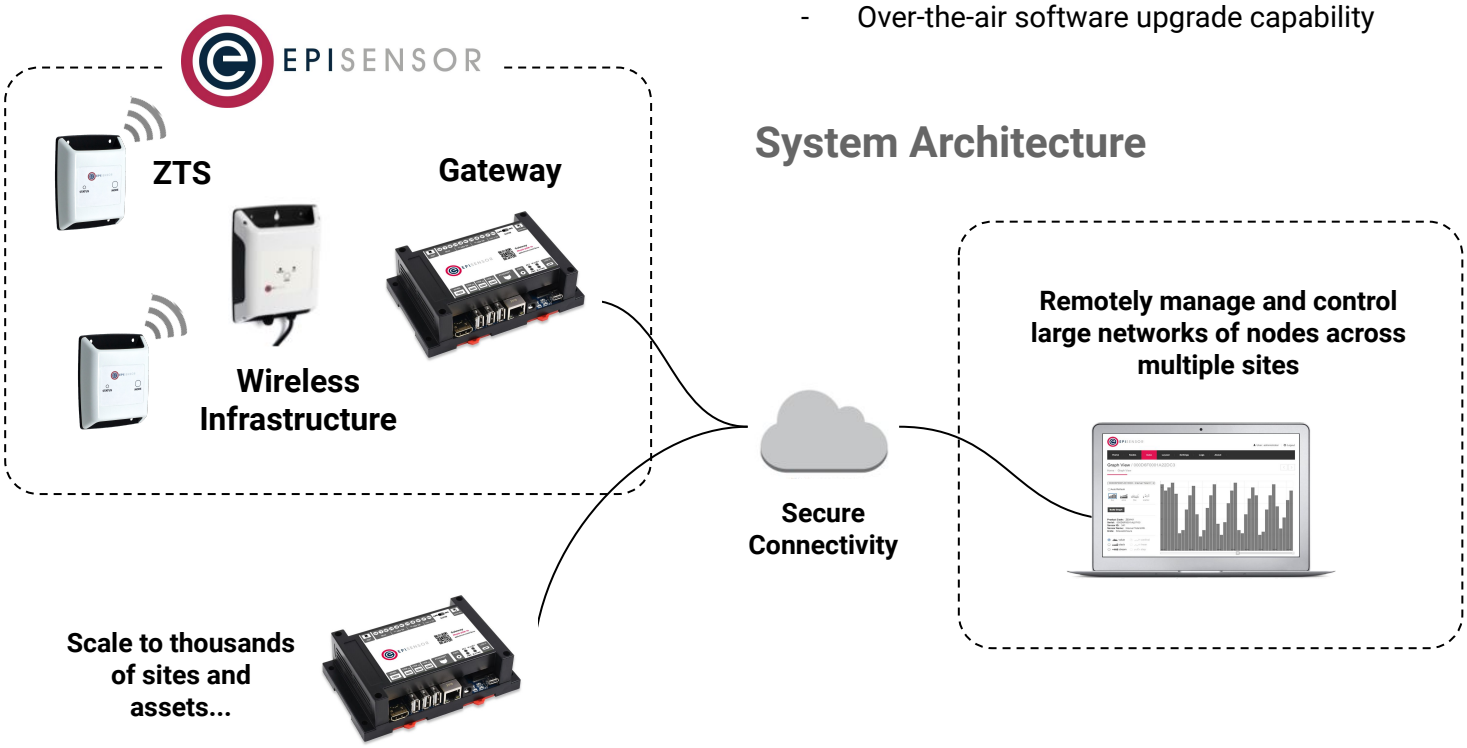
EpiSensor's ZTS is a flexible, highly accurate wireless temperature, humidity, pressure and air quality sensor. It can monitor environmental conditions in buildings and assets remotely and securely via the EpiSensor Gateway, providing facility managers with the granular real-time data they need to improve efficiency, reduce costs and improve performance.

// Key Features

- Security from edge to cloud
- Digital and analogue temperature sensor options
- Small (100mm x 77mm x 24mm)
- Measures VOC, Pressure, Temperature, Humidity, CO2* and Air Quality
- Fully wireless communications
- Various probe and mounting options available
- Waterproof IP67 Polycarbonate Enclosure
- Over-the-air software upgrade capability

For more information, contact:
sales@episensor.com
visit http://episensor.com or call +353 61 512 500

System Architecture



Technical Specification

// Sensor Options

Category	Parameter	Value
Waterproof Probe	Sensor Technology	Thermistor, NTC, 10K Ohm
	Probe Type	Waterproof, IP68, Black TPE
	Probe Cable Length(s)	80mm, 1.5m
	Probe Tip Dimensions	20mm x 5mm
	Normal Temperature Range	-20°C ~ 70°C
	Full Temperature Range	-40°C ~ 105°C
	Accuracy (Normal Range)	± 0.2°C
	Accuracy (Full Range)	± 0.5°C
	Resolution	0.01°C
Stainless Steel Probe	Sensor Technology	Thermistor, NTC, 10K Ohm
	Probe Type	Stainless steel cap, IP68
	Probe Cable Length(s)	2m
	Probe Tip Dimensions	30mm x 6mm
	Normal Temperature Range	0°C ~ 70°C
	Full Temperature Range	-40°C ~ 105°C
	Accuracy (Normal Range)	± 0.2°C
	Accuracy (Full Range)	± 0.5°C
	Resolution	0.01°C
Pipe Probe	Sensor Technology	Thermistor, NTC, 10K Ohm
	Probe Type	Stainless steel, flattened tip
	Probe Cable Length(s)	2m
	Probe Tip Dimensions	50mm x 6mm
	Normal Temperature Range	0°C ~ 70°C
	Full Temperature Range	-40°C ~ 105°C
	Accuracy (Normal Range)	± 0.2°C
	Accuracy (Full Range)	± 0.5°C
	Resolution	0.01°C
Digital Temperature Sensor	Sensor Technology	TI high-precision digital sensor
	Probe Type	Stainless steel cap, IP68
	Probe Cable Length(s)	50mm, 1.5m
	Probe Tip Dimensions	50mm x 6mm

Technical Specification

Category	Parameter	Value
Digital Temperature Sensor (continued)	Normal Temperature Range	−20°C ~ +50°C
	Full Temperature Range	−55°C ~ +150°C
	Accuracy (Normal Range)	± 0.1°C
	Accuracy (Full Range)	± 0.3°C
	Resolution	0.01°C
	Calibration	NIST traceable, verified with equipment calibrated to ISO/IEC 17025
Air Quality Sensor	Sensor Technology	Bosch BME680
	Temperature Sensing Range	-40°C ~ +85°C
	Humidity Sensing Range	0–100% r.H
	Pressure Sensing Range	300–1100 hPa

// Power

Category	Parameter	Value
Battery	Nominal Voltage	3.6V
	Capacity	3.6Ah
	Chemistry	Lithium Thionyl Chloride
	Size	A
	User Replaceable	Yes
	Estimated Lifetime	up to 10 years, 15 min reporting
	Estimate based on	NTC temperature sensing only, 23° C, full wireless coverage

// Communications

Category	Parameter	Value
Wireless Sensor Network	Radio Technology	ZigBee Pro
	Radio Frequency	2.4 GHz ISM band
	Network Topology	Mesh
	Channels	16 (802.15.4 Channels 11 to 26)
	Max Tx Power	+8dBm
	Tx modulation	O-QPSK

Technical Specification

Category	Parameter	Value
Wireless Sensor Network (continued)	Rx Sensitivity	-101dBm
	Max Data Rate	256kbit/s
	Wireless Range	up to 50m indoor / 300m outdoor

// Software & Security

Category	Parameter	Value
Real Time Clock & Sync	Real Time Clock Backup	Battery
	Synchronisation	NTP time server via Gateway
	Timestamp Format(s)	ISO-8601, Unix Epoch
	Timestamp Resolution	1 second
Data Logging	Storage Type	Non-volatile flash
	Capacity	up to 70,000 data points
Security	Sensor Network Encryption	AES 128-bit
	Server Communications	TLS v1.2 / various

// Operating Conditions

Category	Parameter	Value
Operating Conditions	Operating Temperature	−30°C to 55°C (−22°F to 131°F)
	Storage Temperature	−40°C to 70°C (−40°F to 158°F)
	Operating Humidity Range	up to 100%
Physical	Weight	0.125 kg
	Dimensions (W x H x D)	115mm x 94mm x 36.5mm
Enclosure	Material	Polycarbonate
	IP degree of protection	IP65 (IEC 60529)

// Certifications

Category	Parameter	Value
Certifications	Safety	CE
	Environmental	RoHS, WEEE
	EMC/RF	Contains FCC ID: S4GEM35XB
		Contains IC ID: 8735A-EM35XB

EpiSensor products are not suitable or specifically designed, manufactured or licensed for use in military, aviation, powerplant, medical or in other inherently dangerous or safety critical applications.

Technical Specification

// Order Codes

SKU	Description
ZTS-10-w0	Short thermistor probe, uncalibrated, pressure eq. vent, water/dust-proof to IP65
ZTS-10-w1.5	Single 1.5m waterproof thermistor probe, uncalibrated, water/dust-proof to IP65
ZTS-12-w1.5	Dual 1.5m waterproof thermistor probes, uncalibrated, water/dust-proof to IP65
ZTS-10-s2.0	Single 2m stainless steel probe, uncalibrated, water/dust-proof to IP65
ZTS-12-s2.0	Dual 2m stainless steel probe, uncalibrated, water/dust-proof to IP65
ZTS-10-p2.0	Single 2m stainless steel pipe probe, uncalibrated, water/dust-proof to IP65
ZTS-12-p2.0	Dual 2m stainless steel pipe probe, uncalibrated, water/dust-proof to IP65
ZTS-11-s0	Digital temperature sensor, pre-calibrated, pressure eq. vent, water/dust-proof to IP65
ZTS-11-s1.5	Digital temperature sensor, 1.5m probe length, pre-calibrated, water/dust-proof to IP65
ZTS-12-aq	Air quality sensor (gas, pressure, temperature, RH, VOC*, IAQ, CO2*), pressure eq. vent

For the Air Quality variant (SKU: ZTS-12-aq), CO2 values are inferred using a proprietary algorithm, rather than directly measured.

// Accessories & Services

SKU	Description
ZTS-10-clip	Quick release mounting clip for ZTS product range
SV-CAL-EPI	EpiSensor calibration, Single Probe, 1 calibration point
SV-CAL-SP-Q1	UKAS Calibration, Single Probe, 3 calibration points (default: 0°C, 5°C and 10°C)

Installation & Safety Notes

CONTAINS LITHIUM METAL BATTERY

For more information, call +353 61 512 500

- → EpiSensor equipment should be installed, operated, serviced and maintained only by qualified personnel. EpiSensor does not assume any responsibility for any consequences arising out of the use of this equipment.
- → For detailed installation and safety information, consult the Install Sheet.

// Contact

For technical support, please contact **support@episensor.com** or phone +353 61 512 500

Address: EpiSensor Ltd. National Technology Park, Limerick, V94 C61W, Ireland

Manufactured in an ISO 9001 / ISO 14001 certified facility.

Designed and manufactured in Ireland