

CONTAINER, CHASSIS, AND TRAILER TRACKING

# Environmental Sensor

Wireless Multi-Sensor with Extended Battery Life, and Highly Accurate Environment Sensing (Temperature, Humidity, EN EN12830:2018 and EN 13485 compliance)

## Description

The **Environmental Sensor** is an extremely accurate and reliable wireless sensor, featuring rapid response times for precise measurements and extended battery life.

The Environmental Sensor, with its small form factor, offers a wide array of integrated sensing capabilities. It can detect temperature, relative humidity, impact, motion, orientation change, and magnetic field variations. Its innovative design optimizes temperature and humidity sensing performance, by optimizing surrounding airflow, shielding out PCB heat, and preventing moisture buildup to maintain a consistently dry environment. This design sets a new standard for wireless measurement and logging.

The Environmental Sensor can be mounted in cold chain storage and transportation or can be packaged with commodities, to provide end-to-end remote environmental visibility and

high-frequency history/logging. It operates across a broad temperature range (-40°C to +85°C) and humidity range (0% to 100%), ensuring reliable data retention, with storage capacity for up to 3,000 readings between uploads.

The Environmental Sensor employs 2.4 GHz wireless technology for communication with Powerfleet's Logistics and Vehicle Gateways, as well as other 2.4 GHz hubs like smartphones, tablets, and OEM hubs. It provides real-time event reporting through Powerfleet's Gateways, which seamlessly integrate with Unity, Powerfleet's SaaS-based fleet intelligence platform that ingests, processes, and consolidates data from every asset, vehicle, and person.

## Key Features

- Real-time environment sensing functionality includes temperature, humidity, motion/impact, orientation, and magnet (for device on/off switching)
- Operating temperature/humidity: -40°C to +85°C with  $\pm 0.1^\circ\text{C}$  accuracy, 0% to 100% with  $\pm 0.15\%$  typical accuracy, and remarkable low response time that complies with industry standards
- Sample storage: 3,000 samples
- BLE 5.3 Long Range
- Waterproof protection – IP67 rating
- Easy install
- On-the-fly event-based alert notifications



**Up to 5-year battery life**



**High accuracy temperature and humidity sensing**



**Cold Chain compliance - EN 12830 for vibration resistance and EN 60068-2-27 for shock resistance**



## Designed to Revolutionize Your Operations

The **Environmental Sensor** provides a wide range of commodity and operating environment sensing and monitoring features to revolutionize your operations:

- Ensure Good Distribution Practices (GDP) and food safety operation
- Avoid compliance issues
- Ensure commodity temperature and humidity visibility and history
- Capture operating environment details
- Drive continuous improvement
- Shrink operating costs
- Minimize liability
- Increase customer satisfaction

## Technical Specifications

### BLE

|                |                                     |
|----------------|-------------------------------------|
| BLE Technology | BLE 5.3 /2.4GHz. by Nordic nRF52833 |
|----------------|-------------------------------------|

### Power

|                  |                                                                      |
|------------------|----------------------------------------------------------------------|
| Internal Battery | 3.6V Lithium-Thionyl Chloride, AA size, 2500mAh                      |
| Consumption      | 75uA at Temperature & Humidity sampling and transmitting every 1 min |

### Environmental

|                    |                                                                                |
|--------------------|--------------------------------------------------------------------------------|
| Temp, operation    | -40°C to +85°C (Depending on battery type)                                     |
| Temp, storage      | -40°C to +85°C (Depending on battery type)                                     |
| Humidity           | Operating range 0% to 100%                                                     |
| Ingress Protection | IP67                                                                           |
| Vibration, Impact  | Shock resistance according to EN 60068-2-27<br>Vibration according to EN 12830 |
| Power transients   | Unit passes all relevant environmental regulation tests                        |

### Certifications

|               |                                                                                                                                                                                                                                                                                                                |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Communication | FCC, CE                                                                                                                                                                                                                                                                                                        |
| Regional      | EN 13485 and EN 12830 - Temperature recorders for transporting, storing, and distributing chilled, frozen, deep-frozen food and ice cream. Tests performance and suitability.<br>Response time: Maximum 5 minutes<br>Class 0,2: $\pm 0,2^{\circ}\text{C}$<br>Suitability for storage (S) and/or transport (T); |

## Technical Specifications (cont'd)

### Data Retention

|        |                                       |
|--------|---------------------------------------|
| Memory | Up to 3,000 Temp and Humidity Samples |
|--------|---------------------------------------|

### Size

|            |                                   |
|------------|-----------------------------------|
| Dimensions | 94.1 x 39.2 x 26.4 mm (L x W x H) |
| Weight     | 13 gr                             |

### Installation

|          |                                                           |
|----------|-----------------------------------------------------------|
| Mounting | Nylon/metal tie-wraps, 2 screws and/or two-sided adhesive |
|----------|-----------------------------------------------------------|

## Technical Specifications (cont'd)

### Features

|                    |                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Movement           | 3D, $\pm 2g/\pm 8g$ range, 12 Bit representation, 1mg/4mg resolution <ul style="list-style-type: none"><li>Vibration sensing with programmable threshold</li><li>Free-fall sensing with programmable threshold</li><li>Impact sensing with threshold up to 8g</li></ul>                                                                                         |
| Humidity Sensor    | Operating range and accuracy (%RH):<br>Operating range 0% to 100%<br><br>Accuracy<br>10% to 50% RH; TYP $\pm 0.5\%$ RH; MAX $\pm 2.0\%$ RH<br>50% to 70% RH; TYP $\pm 1.0\%$ RH; MAX $\pm 2.0\%$ RH<br>70% to 80% RH; TYP $\pm 1.0\%$ RH; MAX $\pm 2.5\%$ RH<br>80% to 90% RH; TYP $\pm 1.5\%$ RH; MAX $\pm 3.0\%$ RH<br><br>Resolution 0.1% RH, Tested at 25°C |
| Temperature Sensor | Operating range: -40°C to 85°C<br><br>Accuracy (°C):<br>-40°C to 0°C; TYP $\pm 0.1^\circ\text{C}$ ; MAX $\pm 0.3^\circ\text{C}$<br>0°C to 50°C; TYP $\pm 0.1^\circ\text{C}$ ; MAX $\pm 0.2^\circ\text{C}$<br>50°C to 85°C; TYP $\pm 0.1^\circ\text{C}$ ; MAX $\pm 0.3^\circ\text{C}$<br><br>Resolution: 0.1°C                                                   |
| Magnetic Sensor    | 10-30mm range an optionally provided magnet.<br>Used to detect open/closed door and/or power "On"/"Off"                                                                                                                                                                                                                                                         |

Powerfleet (NASDAQ: PWFL; TASE: PWFL) is a global leader of internet of things (IoT) software-as-a-service (SaaS) solutions that optimize the performance of mobile assets and resources to unify business operations. Our data science insights and advanced modular software solutions help drive digital transformation through our customers' and partners' ecosystems to help save lives, time, and money. We help connect companies, enabling customers and their customers to realize more effective strategies and results. Powerfleet's tenured and talented team is at the heart of our approach to partnership and tangible success. The company is headquartered in Woodcliff Lake, New Jersey, with our Pointer Innovation Center (PIC) in Israel and field offices around the globe. For more information, please visit [www.powerfleet.com](http://www.powerfleet.com).