



airo
SENSOR

Lifetime wireless data logger

- Long Range Active RFID
- Real Time Locating System
- Motion Sensor
- Temperature sensor
- Humidity sensor
- Wireless data logger
- 'Lifetime' battery, 10 years



SenseAnywhere introduces the AiroSensor. A lifetime wireless datalogger.

Introduction

SenseAnywhere's AiroSensor leads a new generation of **wireless, ultra low-power data loggers** that connect to the Cloud. It collects accurate temperature and humidity data at programmable predefined intervals and will send it to the central database in the Cloud. In the Cloud your data is kept in your online account and stored for 5 years.



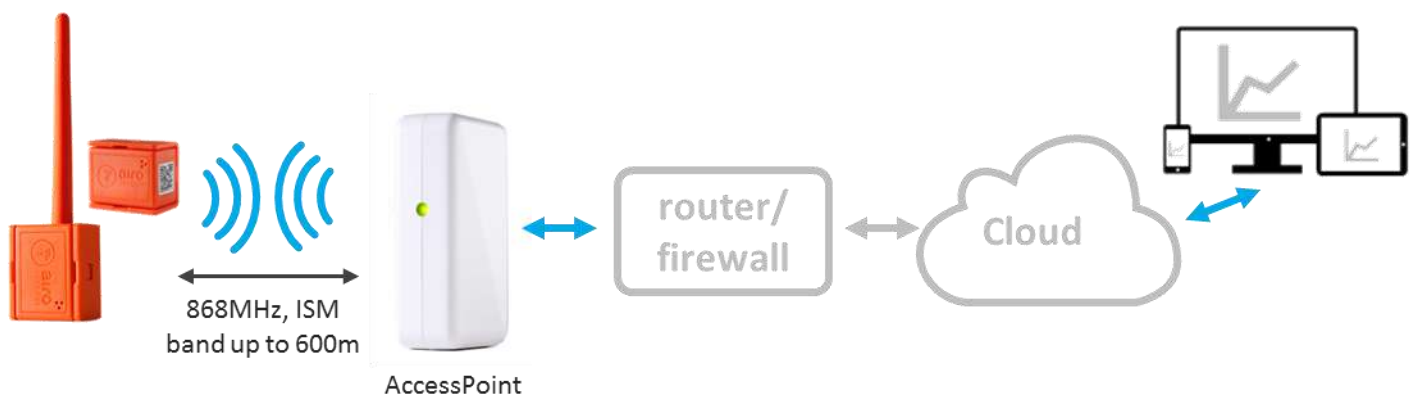
An AiroSensor communicates through SenseAnywhere **AccessPoints**. The wireless communication between the AccessPoint and the AiroSensor goes up to 600m. The wireless frequency and transmission power of the loggers allow you to put them directly into your refrigerators, freezers and cold stores. No cables, no mess. Both the AiroSensor and the network are very easy to install, use and maintain. No pairing and no switches or buttons to press. The AiroSensor is always on, so you cannot forget to switch it on. Measurements are guaranteed to be delivered in the Cloud. Its solid PC-ABS enclosure make the AiroSensor very robust and shockproof so it can be used to monitor equipment but also included with shipments as a data logger. The AiroSensor can be delivered with calibration certificates if needed.

Shipments with AiroSensors will offload stored measurements whenever they come within reach of an AccessPoint whilst travelling through the distribution chain. Its seamless roaming protocol will make sure the logger will connect to the network at any location where AccessPoints are deployed, even if you are not the owner of the AccessPoint. The network will let you know where your AiroSensor is in the chain, which means you can trace your shipment automatically.



How it works

1. The AiroSensor discovers AccessPoints automatically (seamless roaming, no pairing or setup)
2. AccessPoint forwards the message from the logger to the database in the cloud
3. The database securely stores the message and replies that the message has been received
4. The logger receives the reply from the database and deletes the message from its memory
5. Only the owner of the logger can access the data using any internet connected device





Temperature/Humidity

The AiroSensor features an accurate temperature and optionally a humidity sensor. At programmable predefined intervals the measured values will be directly transferred to the central database and when in transit the data is stored in the logger and transmitted when in range of an AccessPoint. Due to the continuous logging over extended periods of time and the automatic wireless transfer of the measurements, reporting and proving that your goods have been kept within limits during storage and distribution has never been easier. No manual intervention is needed. Now the compliancy report needs the data from just one source, not all documents of all refrigerators in the used distribution chain. If things are temporarily stored outside the required conditions, you will know when it happened and for how long accurately, helping you to judge if the shipment is still within acceptable limits and know where to take –preventive– action. Furthermore it is possible to set alerts so you'll receive a SMS or email as soon as the Sensor goes out of range, meaning you can take immediate action.

Accelerometer

The AiroSensor also has an accelerometer. The Accelerometer is used to detect movement. The sensitivity of the motion detection is remotely programmable and will allow tuning motion detection for the asset it is connected to. Besides motion also position (tilt) or shock can be detected. All these events are instantly transferred when the data logger is in range of an AccessPoint. The accelerometer can be used to track running hours, use at odd times and unauthorized use. It functions as theft protection of valuables that should not move e.g. in a museum or public building. The temperature and humidity sensors will also track the environmental conditions of your valuables.



AccessPoints

When the loggers are out of range of an AccessPoint, e.g. when they are attached to goods that are in transit, temperature and humidity data is stored in the device's non-volatile memory with a time-stamp of the event. As soon as the data loggers come in range of an AccessPoint they automatically start offloading their data. Arrival and departure times are also stored. All information is at hand before the shipment is accepted, without opening the package. The AiroSensor can store more than 15.000 temperature and humidity measurements. At a 5-minute interval this means that the logger can be out of range of an AccessPoint for more than 50 days.

Cloud

Reliably collecting real-time data from many locations globally can be a challenging task. We use state of the art Cloud computing with Microsoft's Azure infrastructure, a database with SLA of 99.9% which is backed-up every 5 minutes, to fulfil this task. The real-time redundant database can offer the scalability, reliability, security and redundancy that is needed for these kind of applications. Through a secure API's the data can then be shared and forwarded instantly to a WMS, TMS or ERP system. We work with system integrators to help customers implementing our data loggers in their applications.





Location

The AiroSensor functions as an Active Long Range RFID. It communicates with AccessPoints which locations are known and as such the location of the asset to which the logger is attached is known. Arrival and departure times are automatically logged. The set-up is plug and play; automatic network discovery and therefore no pairing or WPA key programming is required. Due to the long range of up to 600m in the open field, only one or just a few AccessPoints are needed at a location. This together with a 'lifetime' battery that lasts for up to 10 years makes the AiroSensor the most economic choice for your RTLS and your wireless temperature and humidity monitoring. For real-time demands you can use our Mobile AccessPoint with GPS. This enables you to track your shipping's exact location during transport.

Security

The wireless communication between the AiroSensor and the network is a 2-way communication. The data logger will automatically discover the AccessPoints at a given location. The AiroSensor transmits its data to a central database waiting for a confirmation of good reception. When this confirmation arrives, the message is removed from the logger's memory. The protocol features re-transmission attempts and duplicate packet filtering so no event gets lost. This reliable Wireless Short Packet protocol together with the accelerometer can take up the task to use the AiroSensor as a reliable motion detector to protect valuable assets in- and outside.



Benefits

- **Plug and play:** just connect the AccessPoint to your network and install the AiroSensor in the space you want to monitor.
- **Cloud-based:** no software to install, no IT investments, nothing to back-up and keep up-to-date. Data is directly available anywhere on any smart device connected to the internet.
- **Seamless roaming:** data loggers can travel through the distribution chain whilst automatically uploading their data through any SenseAnywhere AccessPoint.
- **Ultra low-power:** latest sensing and processing technology combined with an efficient wireless protocol allows the data logger to deliver over 1 million measurements in the Cloud on its built-in battery.
- **Mobile AccessPoints:** support real-time data logging during transportation with our Mobile AccessPoints.



Applications

- Cold Chain, GDP and HACCP compliance;
- Monitor temperature and humidity of goods during storage and in the distribution chain by just adding the AiroSensor to the goods;
- Remote monitoring of coolers and freezers in warehouses, stores or trailers;
- Climate control in greenhouses and plants;
- Protection and monitoring of pieces of art in museums or public places. Also during storage and transport and lending out periods;
- Automatic stock control of large or expensive goods that need to be kept within certain environmental conditions;
- Theft protection and unauthorized use detection.

Specifications

AiroSensor model	T+RH	T+ RH ER	T	T ER
RF frequency (ISM band)	868 MHz			
Wireless range outdoor	100m	600m	100m	600m
Temperature range	-30°C to +70°C		-40°C to +70°C	
Temperature accuracy	±0.5°C (-30°C to -10°C) ±0.3°C (-10°C to 70°C)		±0.15°C (-40°C to 0°C) ±0.10°C (0°C to 70°C)	
Humidity range	0 – 100% RH (Non condensing)		-	
Humidity accuracy	Typ. ±2% RH (0-80% RH)		-	
Motion detection:	3-axis, sensitivity 0g – 16g, sensitivity remotely programmable			
Battery lifetime:	Up to 10 years with 5 min. interval = 1 million events			
Memory	15.000 events internally (52 days @ 5 min)			
Protection class:	IP 62		IP 67 (waterproof)	
Compatibility	CE, EN300328, EN55022, EN12830, class 1, storage & transport Climatic environment type: D			
LxWxH (mm) with holder	41x33x24	131x33x24	41x33x24	131x33x24