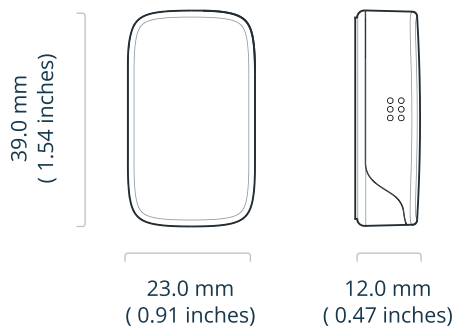
DISRUPTIVE
TECHNOLOGIES

Product Datasheet

Wireless Temperature & Humidity Sensor

Wireless Temperature & Humidity Sensor



Description

The Wireless Temperature & Humidity Sensor periodically measures ambient temperature and relative humidity, then wirelessly transmits the readings to nearby Cloud Connectors at predetermined intervals.

Cloud Connectors relay data from wireless sensors to the cloud via cellular or Ethernet connectivity. Once in the cloud, the data can be integrated into other services using REST APIs and webhooks or viewed directly in Studio (web application).

Features

- High accuracy ±2% RH sensor
- Data backfill up to 31 days
- User configurable sampling intervals

Applications

- Pharmaceutical and medical storage monitoring
- Perishable food storage monitoring
- Art, archive and warehouse climate monitoring

Specifications

Measurements

Temperature Range	-40°C to 85°C / -40°F to 185°F
Temperature Accuracy	±0.3°C / ±0.54°F
Humidity Range	0 to 100%
Humidity Accuracy at 25°C	±2% (0 to 90% RH)
Sampling Interval	Configurable down to 30 seconds
Heartbeat Interval	5, 15, 30, 45, 60 minutes
Data Backfill	Up to 31 days

Battery Specification

Battery Type	BR1632A (Lithium)
Battery Life	Up to 15 Years at 5 min
Replaceable	Yes

Radio & Communication

Communication Protocol	SecureDataShot™
Radio Frequency	868 MHz / 915 MHz
Radio Range	Up to 150 m / 492 ft indoors

Mechanical Properties

Sensor Size	39x23x12mm / 1.54x0.91x0.47 in
Weight	9.3 grams / 0.33 oz
Material	Polycarbonate (PC)
Mounting Method	Adhesive

Product Name	Product Number	Region	Order Code
Wireless Temperature & Humidity Sensor EU	102892	Europe	102891
Wireless Temperature & Humidity Sensor EU, Black	102988	Europe	102987
Wireless Temperature & Humidity Sensor US	102895	North America	102898

How it works

Default Operation

The Wireless Temperature & Humidity Sensor periodically measures ambient temperature and relative humidity, then wirelessly transmits the readings to nearby Cloud Connectors at predetermined intervals. The temperature and humidity measurement interval can be configured to as low as every 30 seconds.

The radio protocol used is SecureDataShot™, and the data is relayed to DT cloud infrastructure using a SecureDataShot™ enabled gateway, also known as a Cloud Connector. From the cloud, the data can be viewed directly in Studio (web application) or sent to external services using webhooks or a REST API.

Measurement Interval

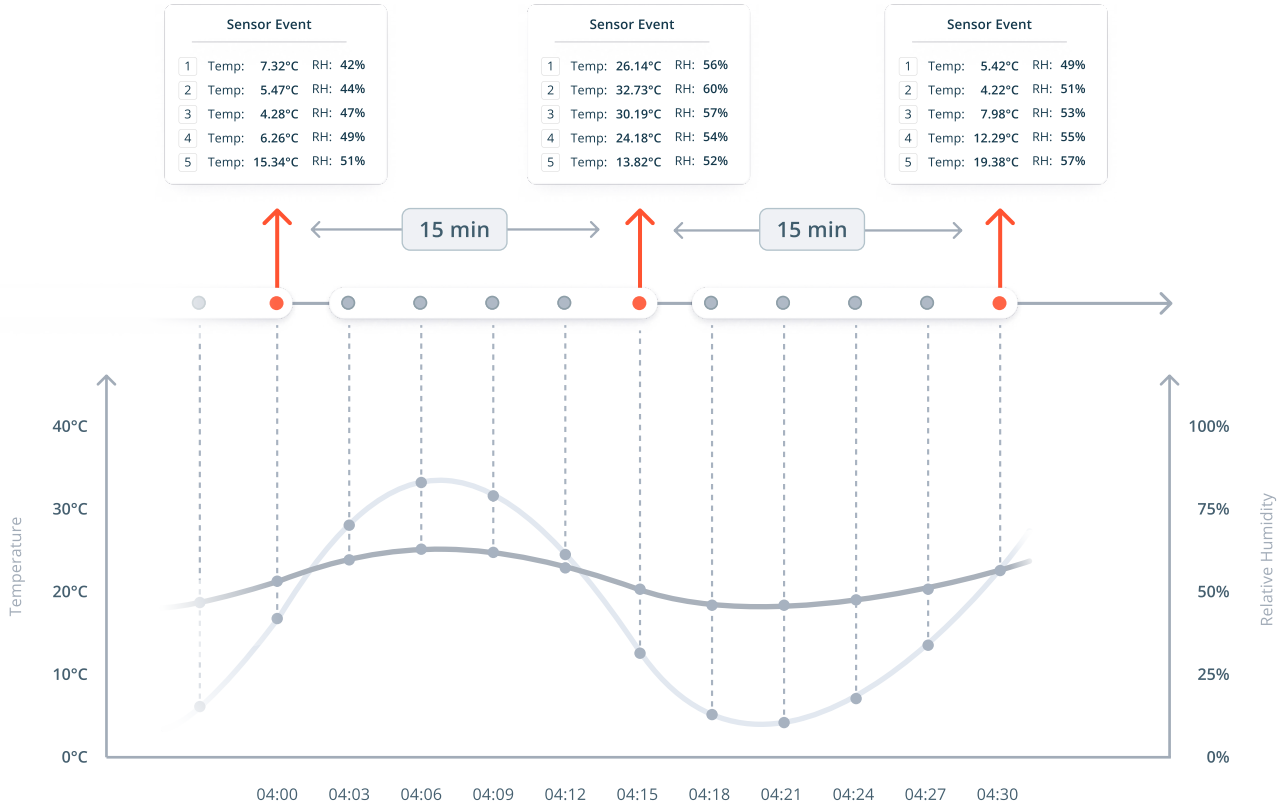
The time between measurements depends on the Heartbeat Interval (HBI) and the number of samples in each heartbeat.

Users can adjust the sensor to capture 1 to 15 samples during a single heartbeat. The table to the right displays the shortest measurement intervals for the available Heartbeat Intervals.

Heartbeat Interval	Measurement Interval
5 min	30 seconds
15 min	1 min
30 min	2 min
45 min	3 min
60 min	4 min

Heartbeat Interval

The Heartbeat Interval controls how often data is sent to the cloud. Sensors can be set to 5, 15, 30, 45, or 60-minute Heartbeat Intervals using Studio or the API.



Events for a sensor configured to 3 minute measurement interval and 15 minute heartbeat.

Technical Specification

Operating & Storage Conditions

Operating Conditions

Temperature: -40°C to 85°C (-40°F to 185°F)

Humidity: 0 to 100% RH (non condensing)

Storage Conditions

Cool and dry (above 20% RH), near normal room temperature.

Wireless Communication

Radio Protocol

SecureDataShot™

Radio Frequency

EU: 868 MHz ISM band

US: 915 MHz ISM band

Radio Range

The sensor is designed to deliver reliable wireless performance on all mounting surfaces, even when installed on metal.

The wireless range is dependent on the gateway the sensor is communicating with.

Product	Indoor		Free Space	
Cloud Connector (1st Gen)	100 m	328 ft	2 km	6561 ft
Cloud Connector (2nd Gen)	150 m	492 ft	4 km	13123 ft

Estimates are based on standard ITU-R P.1238 (indoor) and ITU-R P.525 (free-space).

Certification & Compliance

Certification

EU: CE, UKCA, WEEE

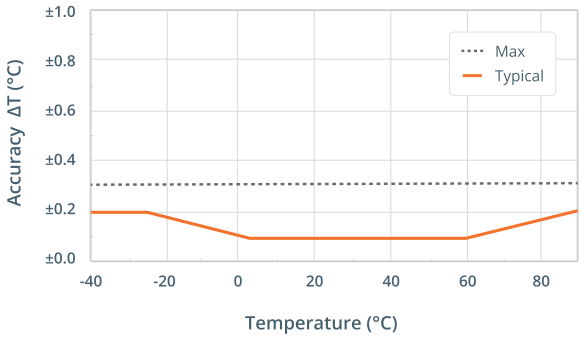
US/Canada: FCC, ISED

IC: 25087-102895

FCC ID: 2ATFX-102895

Temperature Measurement

Full Measurement Range	-40°C to 85°C (-40°F to 185°F)
Recommended Operating Range	0°C to 50°C (32°F to 122°F)
Measurement Resolution	0.01°C (0.18°F)
Long-term drift	Typical: <0.03°C / year (0.054°F)
Sensor Technology	CMOS
Sensor Accuracy The accuracy of the temperature measurement depends on the temperature in the environment.	Max: ±0.3°C (0.54°F). Typical less than ±0.2°C (0.36°F). See graph for details.



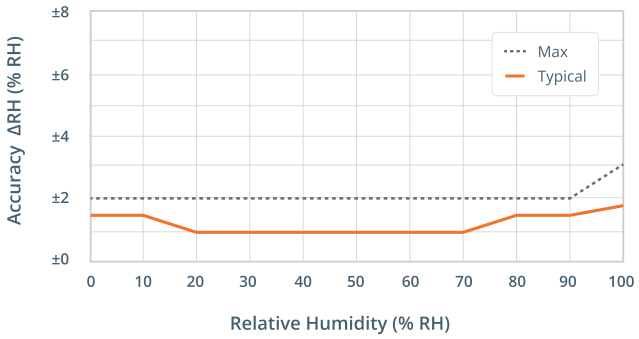
Relative Humidity Measurement

Full Measurement Range	0 - 100% RH
Recommended Operating Range	20 - 80% RH
Measurement Resolution	0.01% RH
Long-term drift [1]	Typical: <0.2% RH / year
Hysteresis	±0.8% RH at 25°C (77°F)
Sensor Technology	CMOS

Sensor Accuracy

The accuracy of the relative humidity depends on the temperature and relative humidity in the environment.

±2% RH (0 to 90% RH) accuracy at 25°C



Considerations

Long term exposure to conditions outside recommended normal range, especially at high relative humidity, may temporarily offset the RH signal (e.g. +3% RH after 60 hours at >80% RH). After returning into the recommended normal temperature and humidity range the sensor will recover to within specifications by itself. Prolonged exposure to extreme conditions may accelerate ageing.

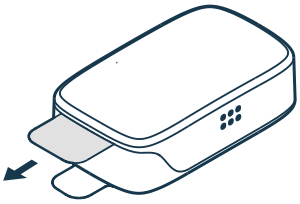
Exposure to chemicals and other contaminants can lead to degradation of the sensor's accuracy over time. Certain chemicals and groups of substances are known to have an increased risk of causing contamination or even irreversible damage to the sensor. Special attention should be given to the following substance groups:

- Volatile (polar) molecules e.g. methanol, ethanol, acetone, isopropanol.
- Cleaning agents applied in a liquid state directly to the sensor.
- Materials such as glues, adhesives, plasticizers which may release volatile molecules by outgassing.

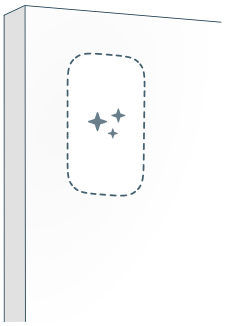
(1): Typical value for operation in normal RH/T operating range. Value may be higher in environments with vaporized solvents, out-gassing tapes, adhesives, packaging materials, etc.

Installation Guidelines

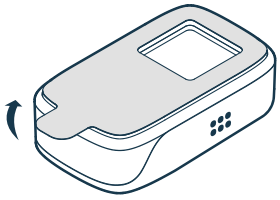
1. Pull the battery tab to activate the sensor.



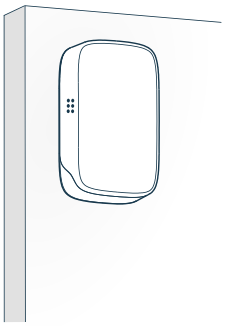
2. Make sure the mounting surface is clean and dry.



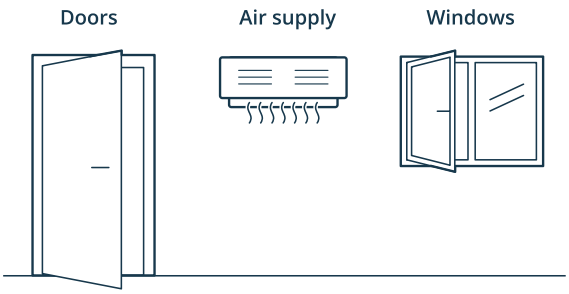
3. Remove the adhesive backing from the sensor.



4. Mount the sensor at the desired location and apply light pressure for 2 seconds to ensure proper adhesion.



⊗ Sensor should be placed **at least 1m (3ft)** from doors, windows, air supply, air vents or any other heating or cooling source that can affect the temperature or humidity measurement.



Battery Specification

Battery	Coin Cell BR1632A – Lithium (Poly-Carbon-Monofluoride)
Lifetime	Up to 15 years

There are three factors that contribute the most to the battery life of the wireless sensor:

Temperature Conditions

The battery's ability to hold and deliver energy is affected by its operating temperature. At high temperatures, the battery will have increased self-discharge, and at low temperatures, it has less ability to deliver the total amount of its stored energy.

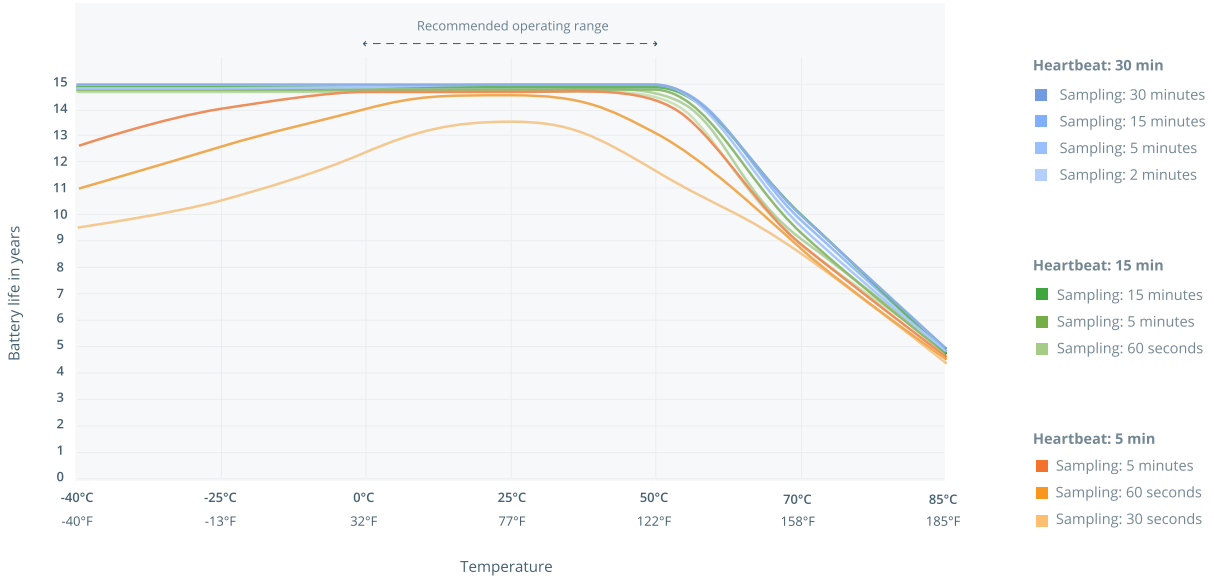
Environments with rapid, repeated temperature changes can significantly reduce sensor life. Cycles that swing from cool/ambient conditions to above ~60°C (140°F) are especially demanding. Such cycling accelerates battery self-discharge and material fatigue, increasing the likelihood of intermittent operation and early failure.

Radio Transmissions

The wireless sensor's most energy-consuming activity is transmitting and receiving radio messages. The average number of radio transmissions per day impacts the battery life.

Sampling Interval

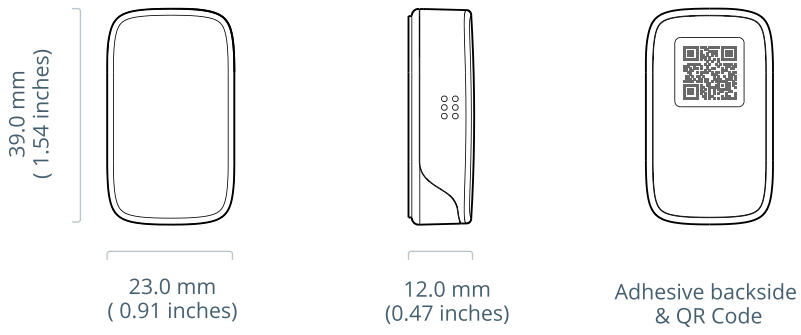
The sampling interval determines how often the temperature is measured, and when compared to the heartbeat interval, it has a negligible impact on the battery life. However, if the sampling rate is set to a very short interval, it can have a noticeable effect at some temperatures over many years of operation.



Please note: The battery lifetimes listed here are estimates and can vary from sensor to sensor depending on usage pattern, wireless coverage and other environmental variables.

Mechanical Properties

Size	39.0 x 23.0 x 12.0 mm / 1.54 x 0.91 x 0.47 inches
Weight	9 grams / 0.32 oz
Material	Polycarbonate (PC)
Mounting method	Adhesive
IP Rating	IP40

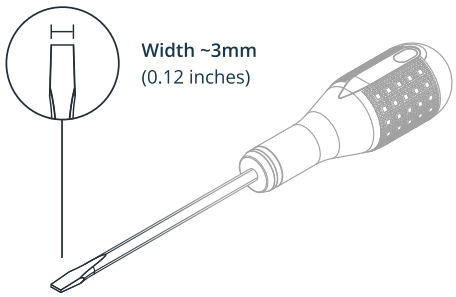


Product Variants

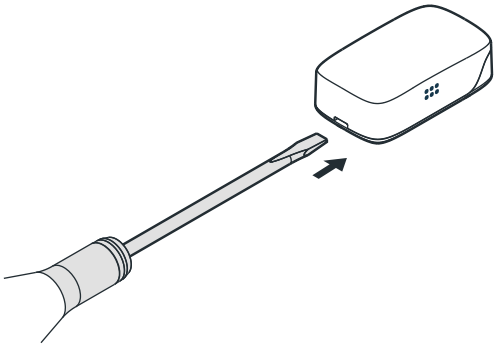
EU Version	**Product Number:** 102892	**Region** : Europe
EU Version, Black	**Product Number:** 102988	**Region** : Europe
US Version	**Product Number:** 102895	**Region**: North America

Battery Replacement

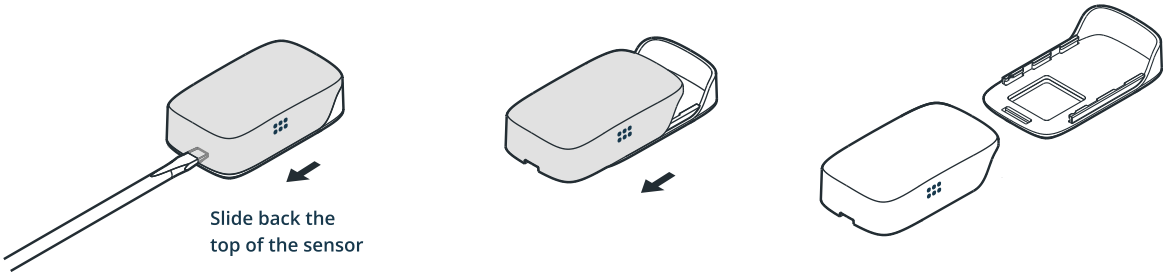
1. To unlock the backside of the sensor you will need a small flat head screw driver.



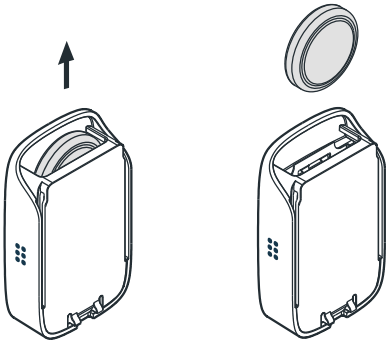
2. Locate the small hole on the sensor and insert the tip of the screw driver.



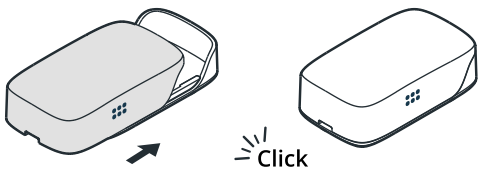
3. After inserting the tip of the screw driver, it will be possible to slide back the sensor from the bracket.



4. The old battery can now be removed and replaced with a new **BR1632A coin cell** battery. Please note the polarity marking on the backside.



5. Finish the battery replacement by sliding the sensor into the bracket until you hear a click confirming it's locked in.



Ordering Information

Europe

Product No.	Name	Order Code	Region	Quantity
102892	Wireless Temperature & Humidity Sensor EU	102891	Europe	1
102988	Wireless Temperature & Humidity Sensor EU, Black	102987	Europe	1

North America

Product No.	Name	Order Code	Region	Quantity
102895	Wireless Temperature & Humidity Sensor US	102898	North America	1

Revision History

Revision 1.0	**Change**: Initial release **Date**: January 21th, 2025
Revision 1.1	**Change**: Added section about temperature cycling. **Date**: September 9th, 2025
Revision 1.2	**Change**: Added product number for EU Black sensor variant. **Date**: September 9th, 2025