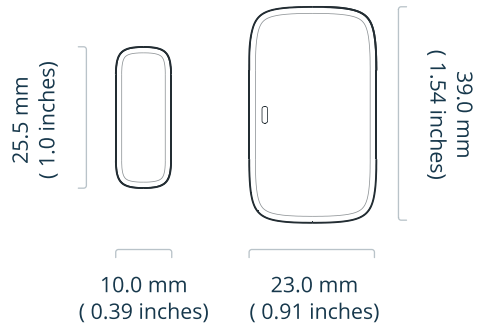
DISRUPTIVE
TECHNOLOGIES

Product Datasheet

Wireless Door & Window Sensor

Rev 1.0

Overview



Description

The Wireless Door & Window Sensor monitors if doors and windows are closed or open based on the presence of a magnet. Upon a change in status, the sensor wirelessly transmits a message to the cloud through a Cloud Connector.

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

Applications

- Door & window status monitoring
- Refrigerator / freezer door monitoring
- Door activity tracking

Specifications

Contact Sensor

Detection Range	Up to 30 mm
Sensor Output	Open / Closed
Technology	Tunneling Magnetoresistance (TMR)

Battery Specification

Battery Type	BR1632A (Lithium)
Battery Life	Up to 15 Years
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
Magnet Size	25.5x10x9.5 mm / 1.00x0.39x0.37 in
Weight (Sensor & Magnet)	14 grams / 0.49 oz
Material	Polycarbonate (PC)
Mounting Method	Adhesive

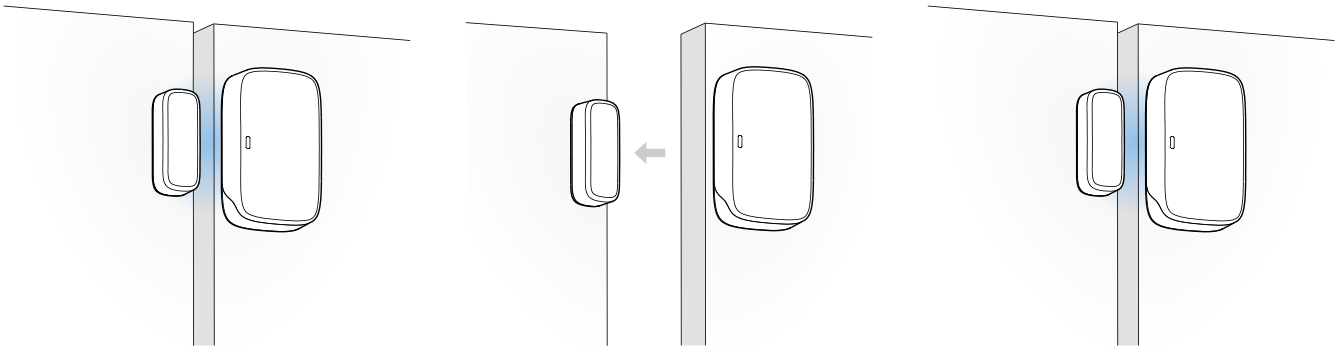
Product Name	Product Number	Region	Order Code
Wireless Door & Window Sensor EU	102736	Europe	102770
Wireless Door & Window Sensor US	102737	North America	102771

How it works

Default Operation

The Wireless Door & Window sensor monitors if doors and windows are closed or open. It consists of two parts, a sensor unit and a magnet. When the magnet is in the presence of the sensor, it will wirelessly send a message to the cloud that updates the status of the sensor to CLOSED. When the magnet is removed, the sensor will send a new message that updates the status to OPEN.

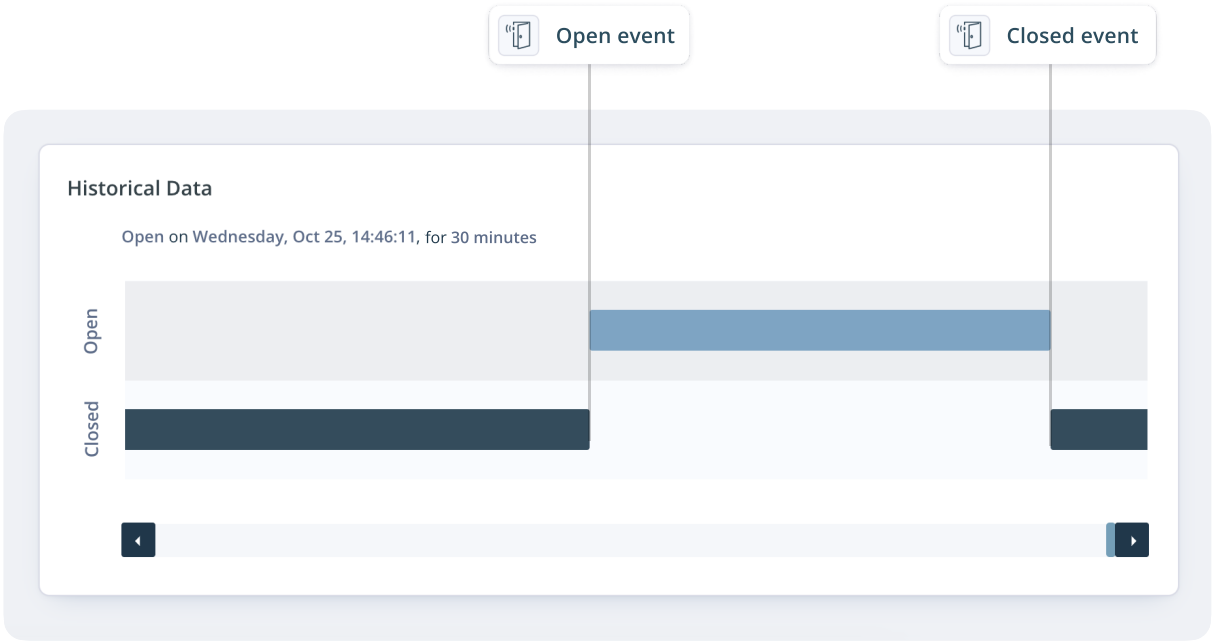
The data is sent to the cloud through a SecureDataShot™ enabled gateway and the data can be viewed directly in Studio - a web application, or sent to an external service through a webhook or REST API.



Door is closed
Magnet is aligned with the sensor

Door opens
New event from sensor

Door closes
New event from sensor



Screenshot from Studio showing a door being open for 30 minutes.

Technical Specification

Detection Distance	30 mm (between edge of sensor to edge of magnet)
Sensor Technology	Tunneling Magnetoresistance (TMR)
Sensor Output	Open / Closed

Operating & Storage Conditions

Operating Conditions	**Temperature:** -25°C to 50°C (-13°F to 122°F) **Humidity:** 0 to 90% RH (non condensing)
Storage Conditions	Cool and dry, 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:** 25087-102737 **FCC ID:** 2ATFX-102737

Battery Specification

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

There are two 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.

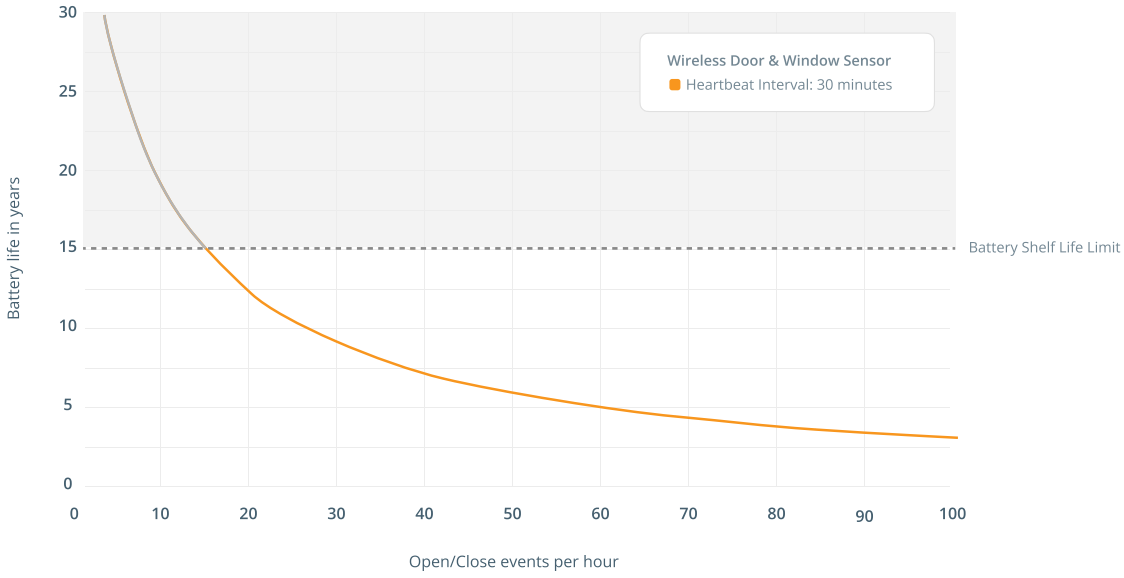
Radio Transmissions

The wireless sensor's most energy-consuming activity is transmitting and receiving radio messages. There are two type of events that can trigger the Wireless Door & Window Sensor to send a radio message; an Event Trigger and Heartbeat.

Event Trigger - every time there is a change in OPEN/CLOSED status.

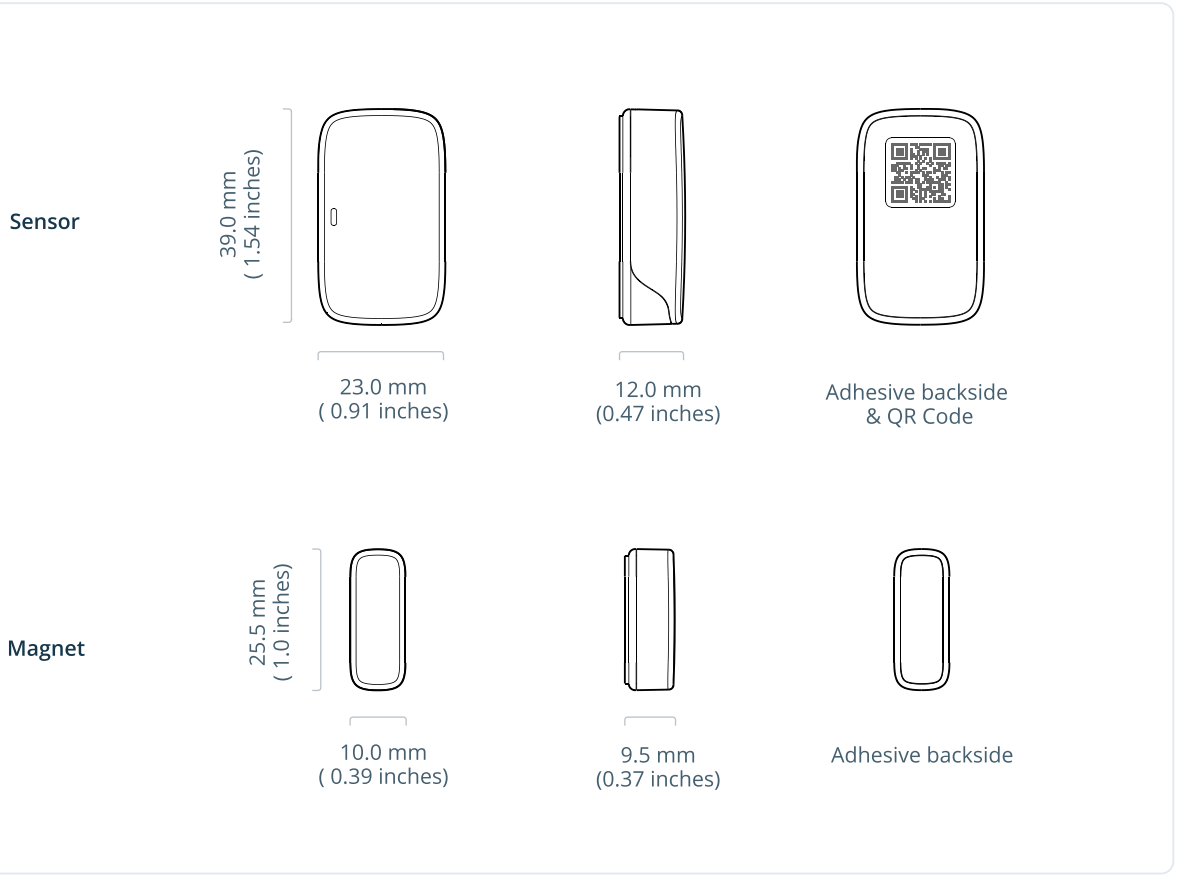
Heartbeat - a health message letting the cloud know the sensor is online. This is a periodic message that is sent at a set interval called Heartbeat Interval (HBI).

The average number of radio transmissions per day dramatically impacts the battery life, the graph below shows the connection between Open/Close events per hour and the expected battery life.



Mechanical Properties

Size	Sensor: 39.0 x 23.0 x 12.0 mm / 1.54 x 0.91 x 0.47 inches Magnet: 25.5 x 10.0 x 9.5 mm / 1.00 x 0.39 x 0.37 inches
Weight	Sensor: 9 grams / 0.32 oz Magnet: 5 grams / 0.18 oz
Material	Polycarbonate (PC)
Mounting method	Adhesive
IP Rating	IP50

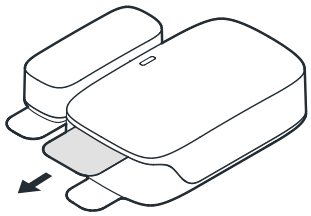


Product Variants

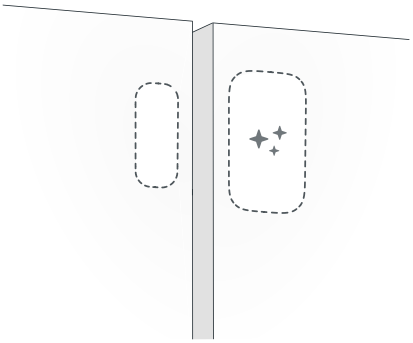
EU Version	**Product Number:** 102736	**Region** : Europe
US Version	**Product Number:** 102737	**Region**: North America

Installation Guidelines

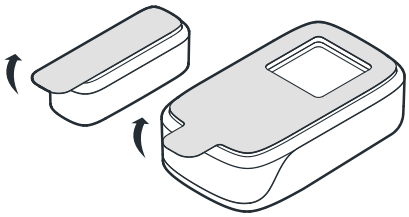
1. Pull the battery tab to activate the sensor.



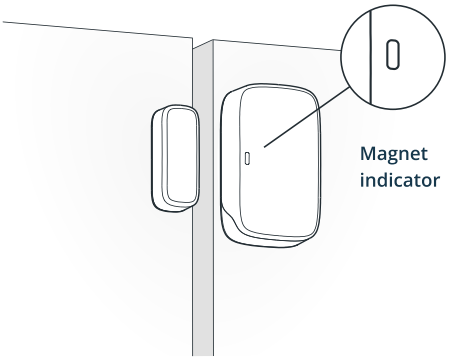
2. Make sure the mounting surfaces are clean and dry.



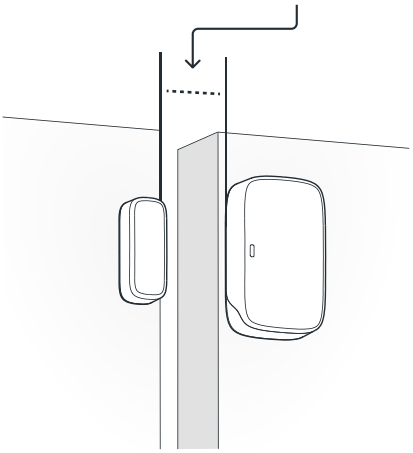
3. Remove the adhesive backing from both the sensor and magnet.



4. Place the magnet on the same side as the indicator mark. They should be center aligned.

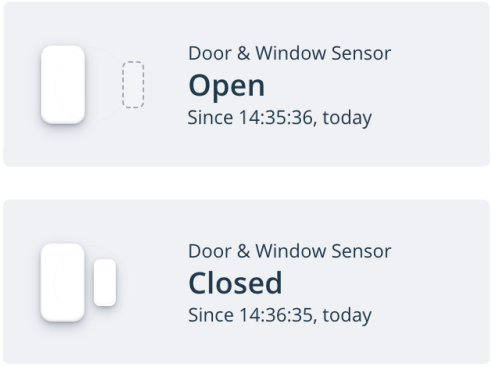


5. Ensure gap is less than **30mm** (1.2 inches).



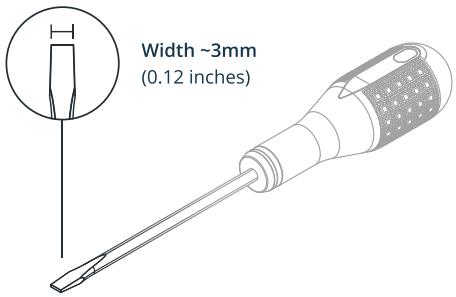
Note: Installing on magnetic surfaces can reduce the required gap to 15mm (0.6 inches).

6. Test the sensor's performance by opening and closing the door/window while viewing the sensor in Studio.

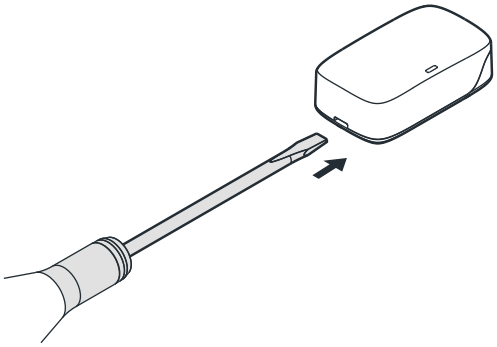


Battery Replacement

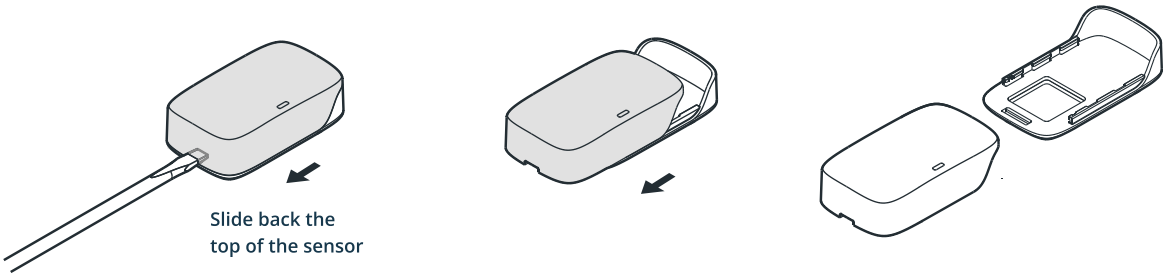
1. To unlock the backside of the sensor you will need a small flat head screw driver.



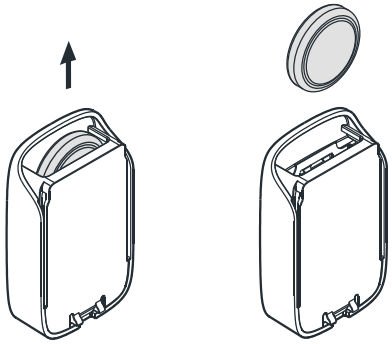
2. Locate the small hole on the sensor and insert the tip of the screw driver.



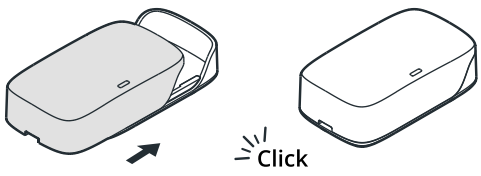
3. After inserting the tip of the screw driver, it will be possible to slide back the sensor from the bracket.



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
102736	Wireless Door & Window Sensor EU	102770	Europe	1

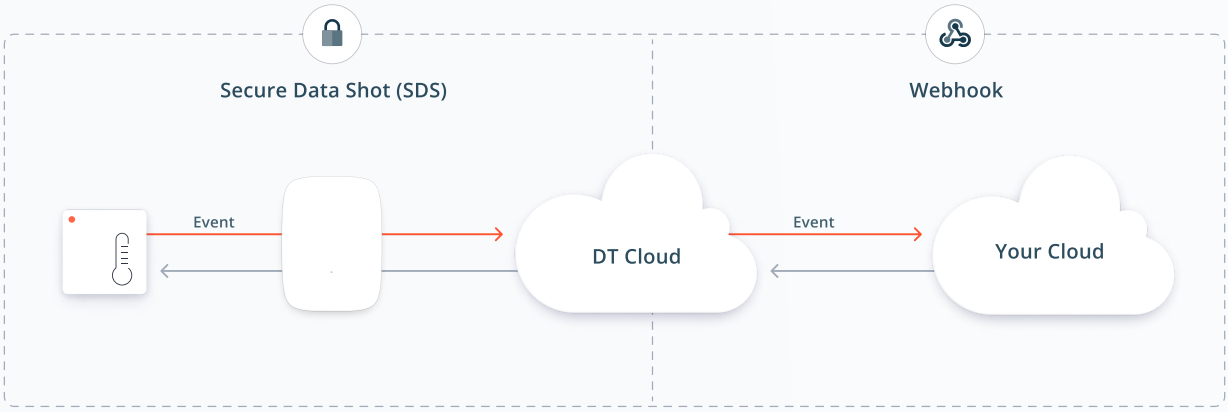
North America

Product No.	Name	Order Code	Region	Quantity
102737	Wireless Door & Window Sensor US	102771	North America	1

Sensor Subscription (mandatory)

Name	1 Year	3 Year	5 Year
Sensor Subscription - Door & Window	800035	800036	800037

Solution Overview



Wireless Sensors

Wireless sensors instantly connects and send data to the cloud via SecureDataShot™

Cloud Connectors

Cloud Connectors automatically connect and relay data to the cloud service

Cloud Service

No servers, databases, or on-prem clients to manage - simply just install sensors and integrate the data into your own service.

Why use a cloud based sensor solution?

Zero-touch Connectivity

No pairing needed, sensors automatically communicate through all Cloud Connectors which results in a quick and easy installation process.

24/7 Monitoring

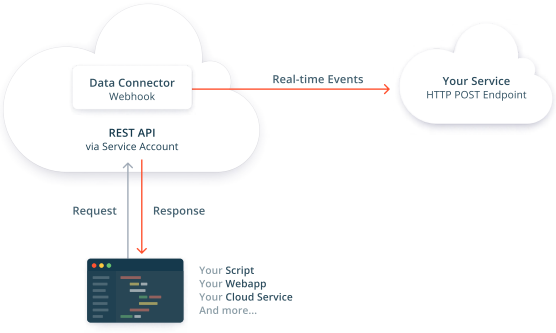
All Disruptive system components are instrumented and monitored 24 hours per day, 7 days per week. Anomalies trigger alarms and notifies our response team.

Easy to Scale

Cloud Connectors support thousands of sensors and the cloud service automatically scales for users with increasing number of sensors.

Centralized Management

No servers, databases, or on-prem clients to manage. A modern cloud platform enables secure access on any device from anywhere in the world.



REST API & Webhooks

Easily integrate the sensor data into your own, or a third-party service, using our REST API or webhooks.

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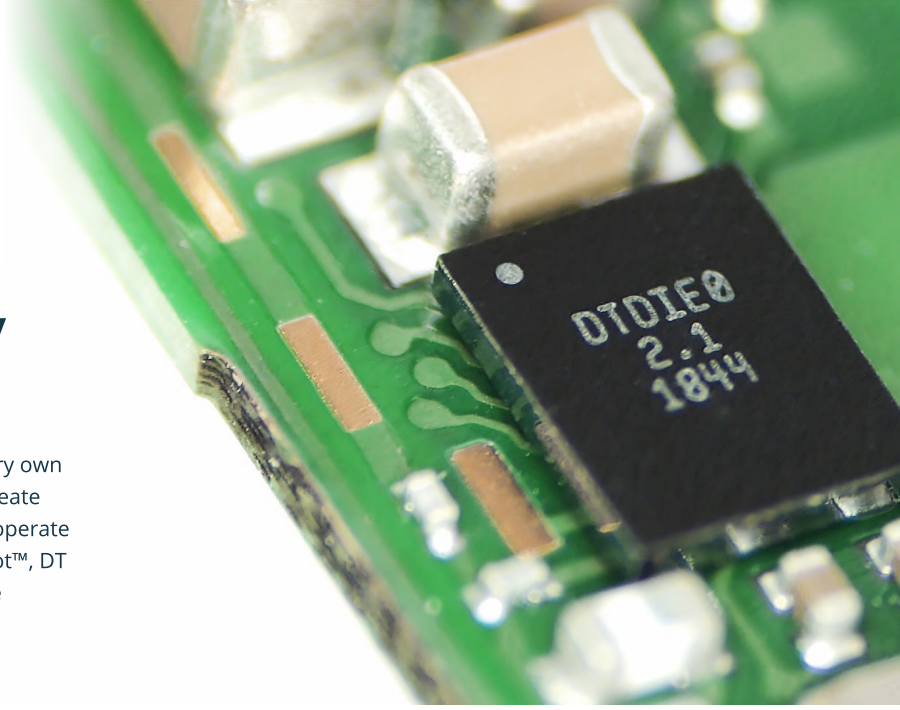


Take advantage of industry leading battery life with DT Silicon

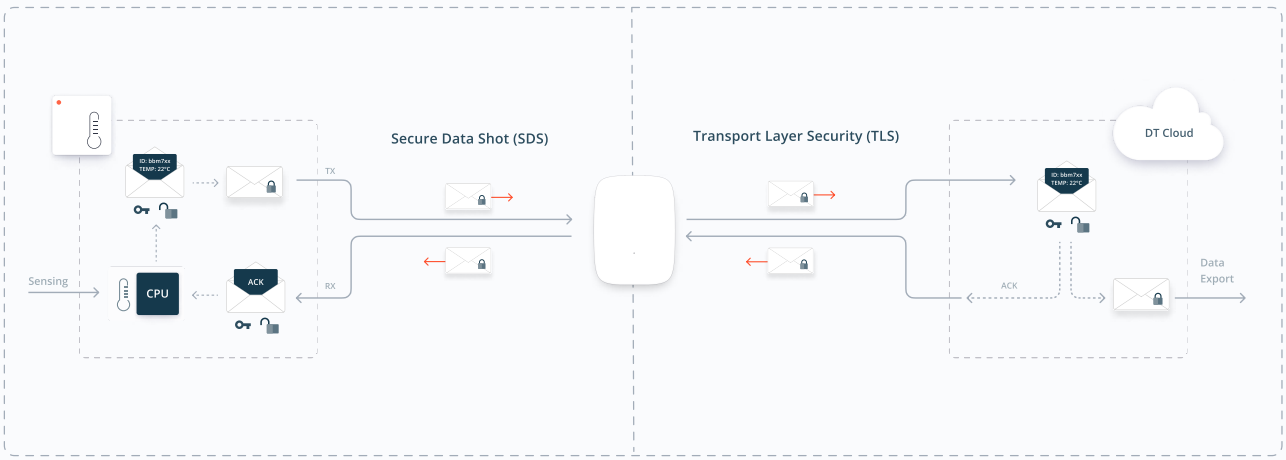
DT Wireless Sensors are powered by DT Silicon - our very own proprietary chip technology that makes it possible to create sensors that use an order of magnitude less energy to operate than other wireless sensors. Paired with SecureDataShot™, DT sensors have superior battery life while maintaining the highest level of security and ease-of-use.

- Enables tiny sensors with long battery life
- Tailor made for the SecureDataShot™ protocol

Secure by default with SecureDataShot™

SecureDataShot™ creates a secure communication channel between the sensor and the cloud instead of between the sensor and the gateway. This reduces the potential for a manipulator-in-the-middle attack by exploiting vulnerabilities in the security architecture of gateways. Cloud Connectors can forward data to and from sensors but cannot decrypt the sensor data.

- During manufacturing, each sensor is assigned a unique 256 bit assymmetric encryption key, generated by a tamper-proof 140-2 Level 3 certified hardware security module.
- Cloud Connector includes a Secure Element (SE) for hardware Root of Trust.
- The public part of the asymmetric key is exchanged with Disruptive Technologies cloud via encrypted channels.
- In addition to the keys assigned during manufacturing, the sensor and cloud also hold a unique SecureDataShot™ session key.
- Sensor data is encrypted using symmetric AES-128 encryption/decryption in CCM-mode.
- Cloud Connectors are provisioned with Transport Layer Security (TLS) certificates to establish a secure connection between the Cloud Connector and the cloud.



Fleetmanagement & Data Insights with Studio

Device Overview

Sort devices into projects for easy access and get an overview over data, health status and radio coverage

Flexible Dashboards

Get a quick overview of sensors and compare data with easy-to-use drag-and-drop dashboard cards

Access Control

Create role-based user accounts for people and services that need access to sensor data

Notifications

Set up simple rules for sensors and receive automatic sensor triggered notifications

Data Forwarding & API Integrations made simple

Data Connectors / Webhooks

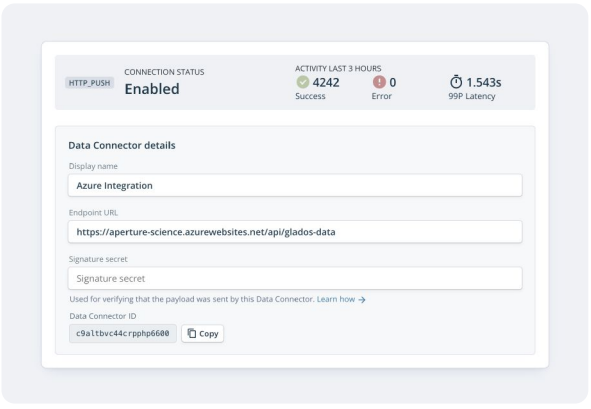
Easily configure secure webhooks to forward the data to your own service.

Service Accounts

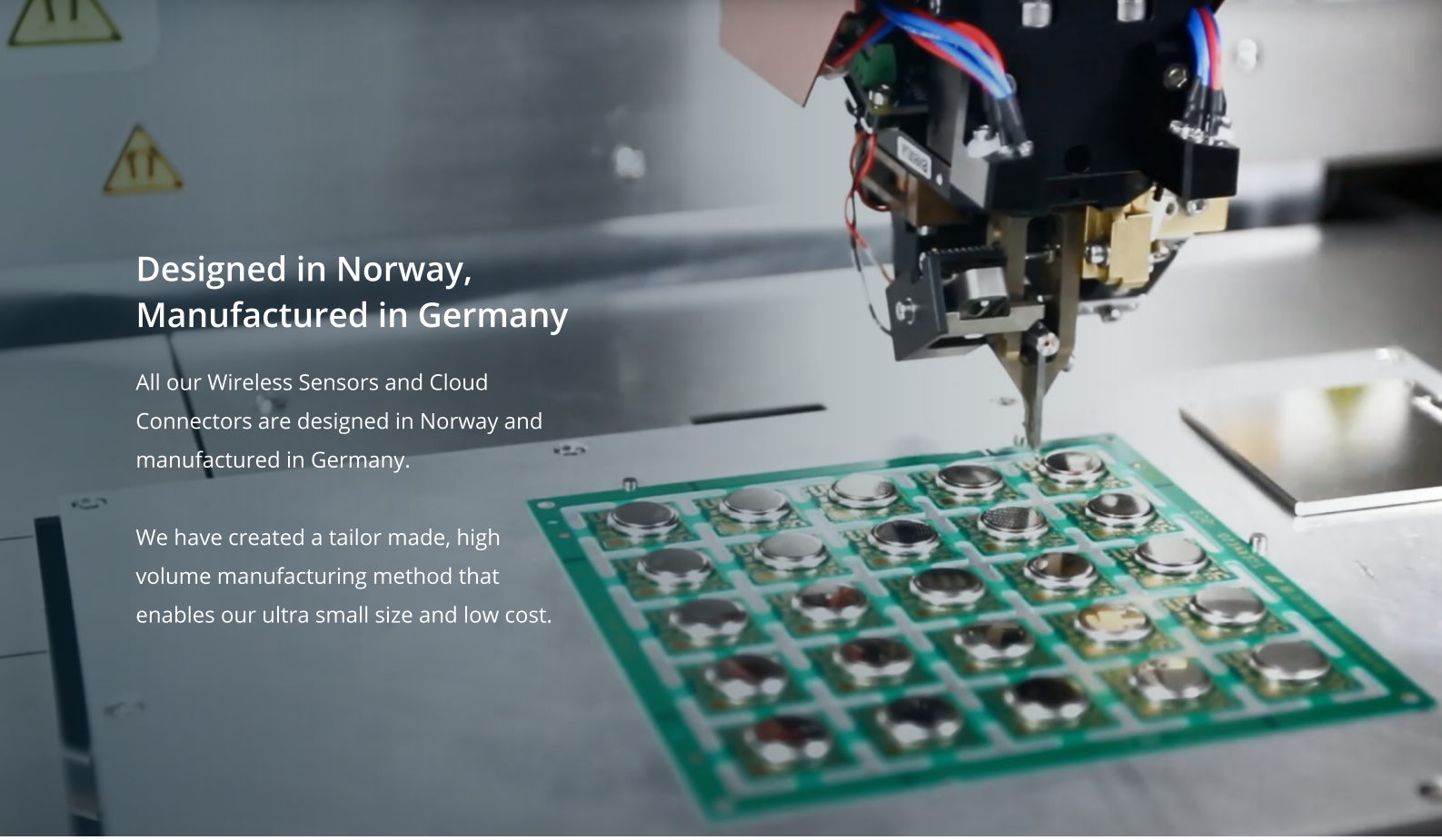
Create and manage role-based service accounts to let your own cloud service authenticate with the REST API.

Sensor Emulators

Create emulated sensors to test your API integrations without access to physical hardware.



Azure aws Google Cloud IBM Cloud



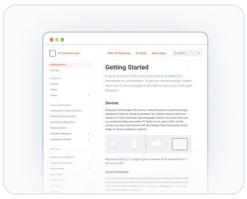
Designed in Norway, Manufactured in Germany

All our Wireless Sensors and Cloud Connectors are designed in Norway and manufactured in Germany.

We have created a tailor made, high volume manufacturing method that enables our ultra small size and low cost.

Ready to learn more?

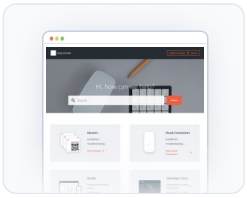
To learn more about DT's wireless sensor solution and how you can benefit from it, visit our website or schedule a demo with a member of our sales team at **https://www.disruptive-technologies.com/contact-us** or contact us directly via email at **sales@disruptive-technologies.com**



Developer Docs

Browse our developer documentation to find everything you need to know about the system, tutorials, integration guides, and API references.

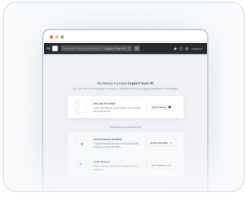
Learn more



Support Center

Browse our support center to find details about our products, technology, installation guidelines, and answers to frequently asked questions.

Learn more



Sign Up for Studio

Create a Studio account and test our software and API integrations using emulated sensor events.

Learn more

Revision History

Revision 1.0

Change: Initial release

Date: November 23rd, 2023

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