Sensor spec-sheet

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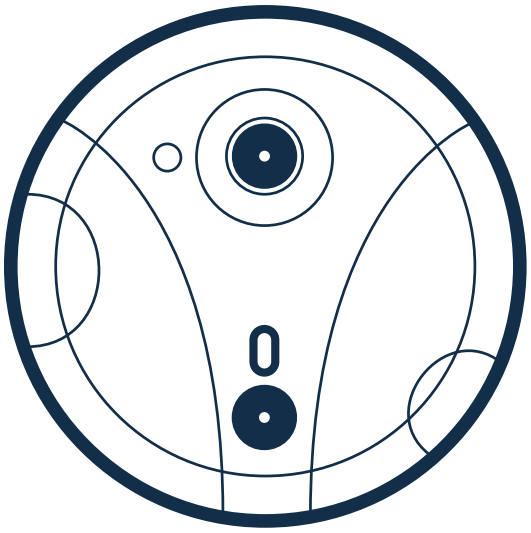
PointGrab CogniPoint Sensor

Solution for: occupancy, traffic tracking

OCTO uses PointGrab's CogniPoint™ sensors in order to gather data about occupancy, traffic, and movement inside buildings. These intelligent sensors provide reliable and actionable insights that allow users to gain complete oversight on occupancy data, with outstanding accuracy and privacy measures.



Ensures the privacy of your employees/customers

Accurately measure the use of spaces

Pros and Cons

- ⊕ Easily connect multiple sensors to cover larger areas
- ⊕ Bi-directional movement detection
- ⊕ Up to 48 square meters of coverage
- ⊖ Requires thorough preparation
- ⊖ Cables and infrastructure needed
- ⊖ Difficult to move to another position

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Specifications

Typical dimensions	Diameter: 12cm Thickness: 3.5cm Back adaptor diameter: 9cm
Typical weight	145g
Installation height	2.5m-4m from floor
Detection area	Between 4.5m x 6m and 6m x 8m, depending on installation height
Internet connectivity	Ethernet
Device output ports	HTTPS (443) and MQTT/TLS (8883)
Internet protocols	IPv4 and IPv6
Network bandwith	Average analytics data per sensor: 11,5MB / day
Operating temperature	0-45 Degrees (°C)
Certifications	FCC, CE
Safety	EN 60950-1, equivalent to UL_IEC / UL 60850 Information Technology Equipment - Safety - Part 1
IP rating	IP40

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Power consumption	4W
MTBF	8 years

	Input	Connector/Cable Type	Power Rating
Power interfaces	DC Input	2x Terminal Connector, 12-22AWG (Wire gauge 1.5 mm^2 / 15AWG)	12V-24V
	PoE	RJ-45 (Cat 5e cable or better)	Conforms with 802.3af Class 2

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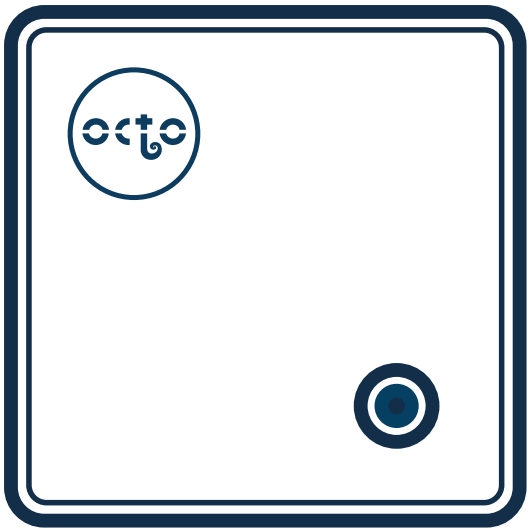
Elsys ERS Sensors

Solution for: movement, temperature, humidity

Due to their wide range of capabilities and adaptability, Elsys' sensors prove to be extremely efficient tools to measure occupancy, temperature, CO_2 emission, humidity, light levels, and noise. OCTO uses a mixture of such sensors in order to ensure maximum reliability when collecting data in buildings. The Elsys sensor models in OCTO's arsenal are the ERS (-CO2, -Sound), ERS Desk, and ERS Eye.



A solution for most problems

Allows full overview of indoor environment

Multiple functions in one device

Pros and Cons

- ⊕ Easily configurable via NFC
- ⊕ Battery life up to 10 years
- ⊕ Over-the-air parameter changes
- ⊖ Occupancy is estimated based on movements
- ⊖ Max. 15 minute delay of data transfer

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Specifications

Certification	All sensors are LoRa Alliance certified
Detection	**ERS (-CO2, -Sound):** Temperature, Lux, Motion, Humidity, (+CO_2 for ERS-CO2 and Sound peak and average for ERS-Sound) **ERS Desk and Eye:** Temperature, Humidity, Lux, Occupancy (body sense)
Connection/ configuration	**ERS (-CO2, -Sound):** NFC for easy configuration **ERS Desk and Eye:** NFC and Over the air configuration
Typical dimensions	All sensors have the following dimensions: 86x86x26mm
Accuracy	All sensors have the following accuracy: ±0.5°C, ±2%rh, (±50ppm ±3% of reading for ERS-CO2; ±5dB for ERS-Sound)
Resolution	All sensors have the following resolution: 0.1°C, 0.1%rh, (0-10000ppm for ERS-CO2; 1dB for ERS-Sound)
Approx. range	All sensors have an approximate open field range of 8 kilometers
Battery life	**ERS (-CO2, -Sound):** Approx. 10 years **ERS Desk and Eye:** Approx. 5 years
Channel planes	All sensors operate on the following channels: US902-928, EU863-870, AS923, AU915-928, KR920-923
Battery	All sensor use 2x3.6V AA lithium batteries

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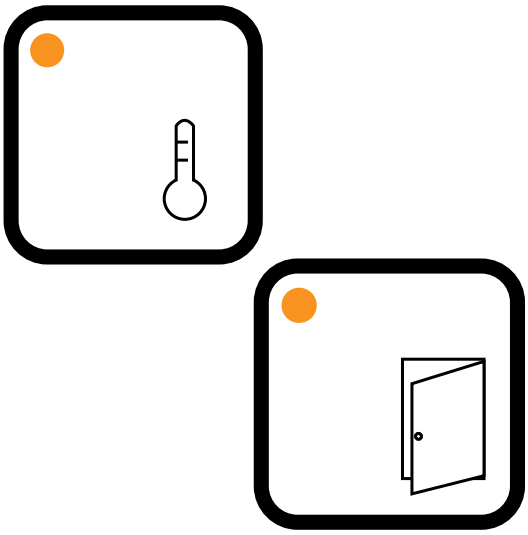
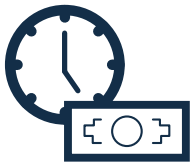
Disruptive Wireless Sensors

Solution for: temperature, safety, lower-budgets

Disruptive Technologies' small but powerful sensors allow users to collect data in seamless, but effective ways. These tiny sensors have the potential to provide solutions in places where other sensors have not been able to yet. Due to the versatility and easy installation of these sensors, one can have state-of-the-art innovation in their building in no time.





Easy and cost effective setup

Small and space efficient design

Pros and Cons

- ⊕ Temperature / proximity / touch sensors
- ⊕ Wireless connection
- ⊖ Sensor connectivity range is still quite small
- ⊖ One sensor measures just one unit

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Specifications

Wireless Temperature, Proximity, and Touch Sensor

Operating conditions	**Temp. range:** -40 to 85°C **Rec. Temp. range:** -25 (3 for proximity sensor) to 50°C, non-condensing **Humidity at 25°C:** 0 to 100% relative humidity
Storage conditions	Cool and dry, near normal room temp.
Construction material	Sealed, IP68, impact modified acrylic film
Typical dimensions	19x19x2.5mm (±0.2mm)
Typical weight	2.0g (±0.3g)
Lifetime	Up to 15 years
Certifications and compliance	CE, WEEE, Batteries directive
Radio range	**Standard Mode:** 25m indoor, 300m open space **High Power Boost Mode:** Up to 1000m open space

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Specifications

Cloud Connector

Operating conditions	**Temp. range:** 0 to 45°C **Humidity:** 10 to 90% relative humidity, noncondensing
Ingress protection	IP20
Power supply	230V AC, 75mA, 50Hz. Power plug: Europlug type C
Typical dimensions	130x67x77mm
Typical weight	200g
Certifications and compliance	CE, WEEE
Interfaces	UMTS (2G/3G) 100Base-T-RJ-45 speaker, microphone
Frequency	**Sensor interface, EU:** 868 MHz ISM band, SecureDataShotTM **Cloud interface:** 2G: GSM900, DCS1800, 3G: band-8 (900 MHz), band-1 (2100 MHz)
Wireless connection	EU: 868 MHz ISM band, SecureDataShotTM
Temperature resolution	0.05°C resolution, ± 0.4°C absolute accuracy at 25°C

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Wireless connection	EU: 868 MHz ISM band, SecureDataShotTM
Temperature resolution	0.05°C resolution, ± 0.4°C absolute accuracy at 25°C
Proximity detection distance	0-5mm
Proximity response/ recovery time	750ms / 1500ms

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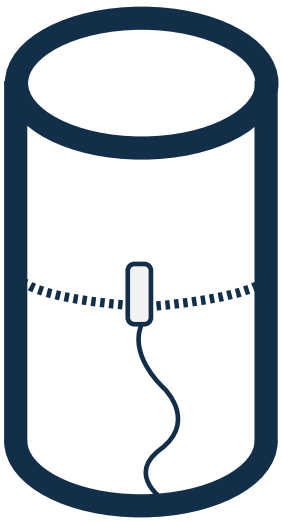
Legionella Sensors

Solution for: health maintenance

OCTO's legionella sensors provide necessary protection against the bacteria that is present in the taps and pipes of every building. These sensors run 24/7 in order to help prevent bacteria to grow, while leading users to save time, water, and CO_2 emissions.



Easily install on copper pipes

Measurements every 30 seconds

Saves time, water, and CO_2 emissions

Pros and Cons

- ⊕ Reduces yearly tap water usage
- ⊕ Wireless data communication
- ⊕ Works both on cold and hot pipes
- ⊖ Most accurate when applied on copper pipes

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Specifications

Connectivity

Connectivity Protocol: LoRa Network
Message interval: 15 minutes

Installation

A sensor lead is connected to both the hot and cold water line with the help of a cable tie.

Data

During each 15 minute interval, the following data is communicated:

- Current temperature
- Minimum temperature
- Average temperature

In case of a flush within the interval, the following is communicated about the flush:

- Temperature at the start of the flush
- Stabilized temperature after the flush
- 30 second temperature updates for two minutes after the flush

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