

Portal Beam

The Internet of Things. Now, in One Thing.



Overview

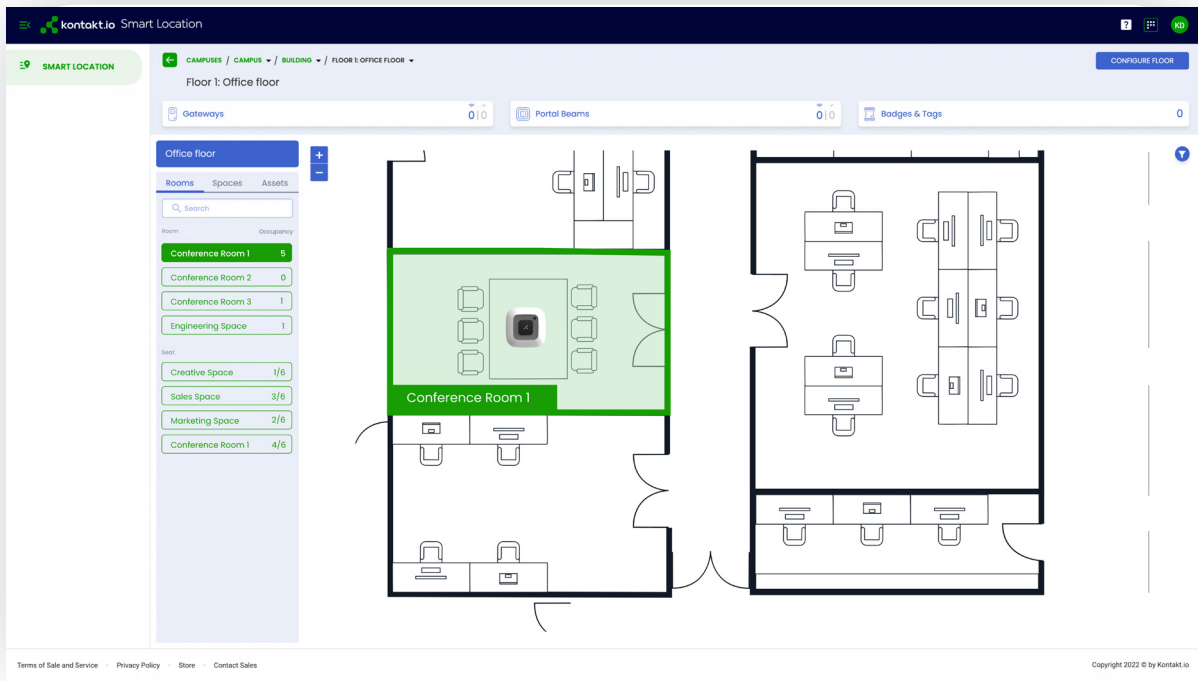
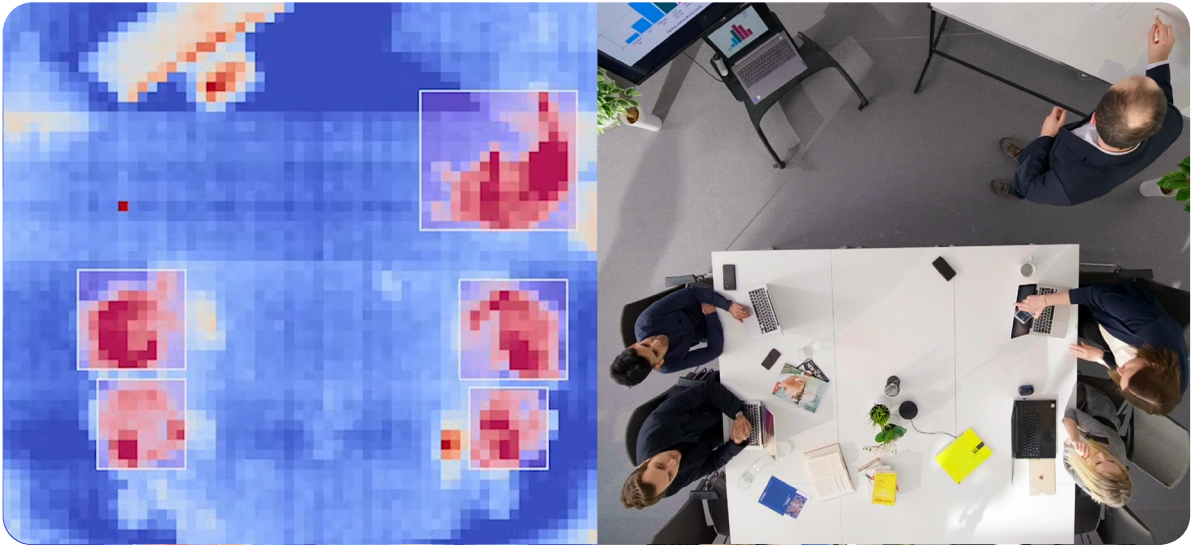
The Portal Beam is a 9-in-1 cloud-enabled sensor platform for quantifying rooms and delivering building insights in real-time. It's the only product in the market that enables all indoor spatial intelligence use-cases, from understanding granular and privacy compliant space occupancy to tracking of identifiable assets and individuals.

The Portal Beam uses nine different sensors: thermal imaging camera, temperature, humidity, air quality, light, infrared beaconing, RSSI fingerprinting, and iBeacon. The Portal Beam comes with an **8-core CPU** with a Neural Network architecture and **Bluetooth 5.0** readiness. Out of the box, it is compatible and seamlessly integrates with any standard Bluetooth-based wireless infrastructure, including Enterprise Access Points from companies like Cisco. The Portal Beam does not require any additional Gateways. A Portal Beam is deployed in **60 seconds** and easily managed and configured via the **Kio Cloud platform** and the **Kio mobile app**. Relying solely on a BLE-radio for its wireless backhaul, the Portal Beam has a battery life of four years with default settings. Its value proposition supports five unique use-case capabilities in one device.

- **Room Occupancy Monitoring:** A Portal Beam deployed on a ceiling in a meeting room lets you monitor how people occupy spaces and track the occupancy and utilization of rooms without infringing on privacy.
- **Seat-Level Occupancy Monitoring:** A Portal Beam can measure the occupancy of cloud-defined multi-seat workstations in enclosed rooms or open spaces. Resulting in detailed, seat-level utilization data. When in Seat Mode, a Portal Beam measures the count of workstation seats that are occupied and not occupied.
- **Footfall Traffic Counting:** A Portal Beam deployed above a door or corridor can count people traffic in floors, or entire buildings. When in Traffic Mode, a Portal Beam detects movement and counts people entering and exiting a space defined by an adjustable threshold line. This allows users to understand space, floor and building utilization data against defined capacity limits.
- **Environment Monitoring:** With its rich set of sensors the Portal Beam helps to provide a safer and healthier workplace reducing the building's carbon footprint, and improving the employee experience. The Portal Beam environmental sensors measure ambient air temperature, relative humidity, ambient light level, air pressure, and a calculated Air Quality Index (AQI) level. Additional sensors are optional.
- **Mobile Indoor Navigation:** With a built-in iBeacon, Portal Beams are the infrastructure for mobile-based wayfinding applications and SDKs. With Portal Beams deployed in every room, there is no additional need for a standalone iBeacon infrastructure.
- **Asset and Badge Tracking:** With its BLE-radio and Infrared-array the Portal Beam enables location-tracking use cases of tagged assets, people or visitors. Providing room-level accuracy and low-latency tracking data delivers unlimited use cases - from healthcare workflow, contact tracing, pairing visitors with hosts, to tracking the flow and location of valuable assets. Room-level certain tracking of assets or people requires Bluetooth-enabled Tags (in the 2000s known as RFID) like the Kontakt.io Smart Badge, and Asset Tag 2.

Room Occupancy Mode

- Show availability of rooms such as offices, meeting rooms, or patient examination rooms.
- Show occupancy levels of large rooms or spaces. For example, showing the number of patients currently in a waiting room.



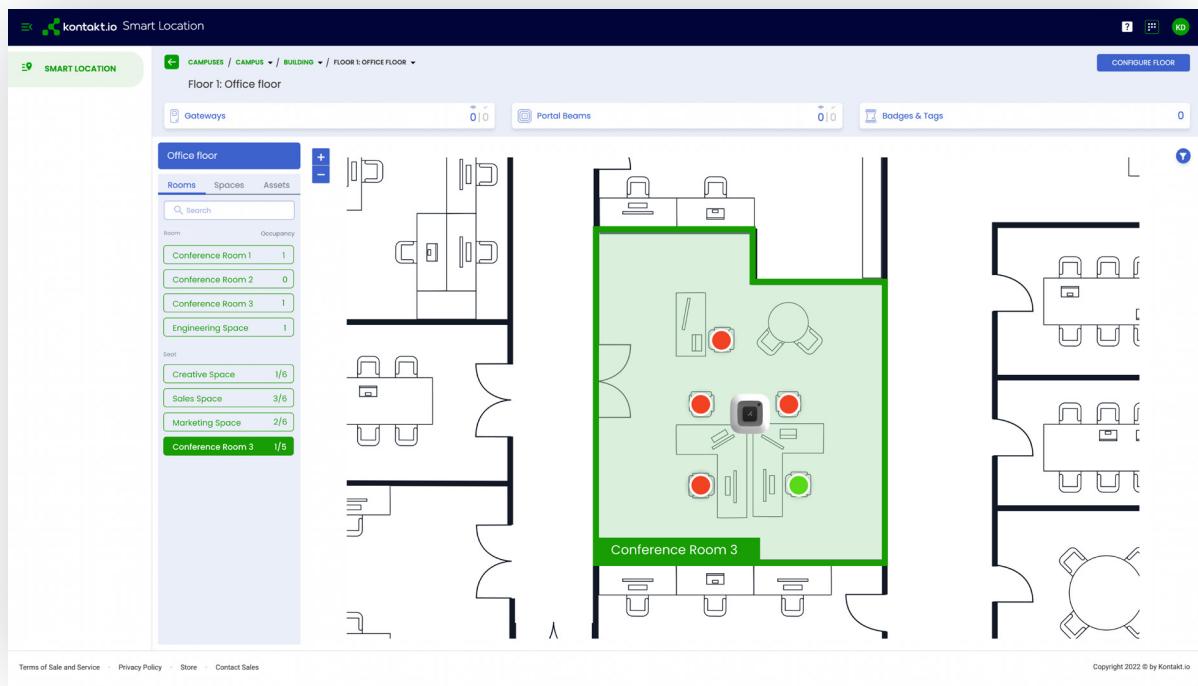
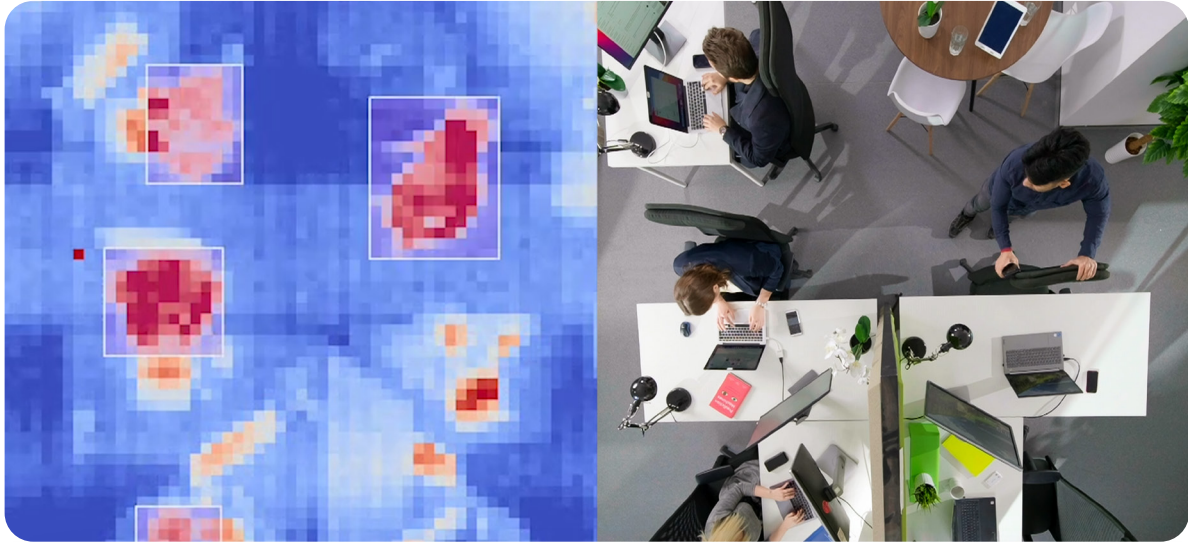
Room Occupancy Mode

Room Occupancy Infrastructure Requirements

Infrastructure	Requirement
Kio Cloud Smart Location	<p>Campus, buildings, building floors, floor plans, rooms.</p> <p>Each Portal Beam is placed into a Smart Location room at its exact install location.</p>
Portal Beam Setup	<p>Portal Beam firmware: latest version.</p> <p>Completed from the Kio Gateway Installer app at the time of installation.</p> <ul style="list-style-type: none">• Mode set to Room Occupancy.• Portal Beam assigned to its Smart Location to map its exact install location.• Any area detected in a room that does not represent a person is set to an exclusion area.• Install height provided (floor to ceiling measurement).• In-app automated testing completed.
Portal Beam Installation	<p>Portal Beam is located in each room and/or open space requiring room-level occupancy measurements.</p> <p>Portal Beam within Bluetooth range of a Kontakt.io Portal Light or BLE-enabled Access Point.</p> <p>A maximum of two Portal Beams in a single room or corridor.</p> <p>Room with two Portal Beams: distance between beams 11.25 ft (3.4 m).</p>

Seat-Level Occupancy Mode

- Measures the seat occupancy in a workstation space.
- Measure utilization of specific seats in multi-person workstations.
- Show availability of specific seats in multi-desk workstations.



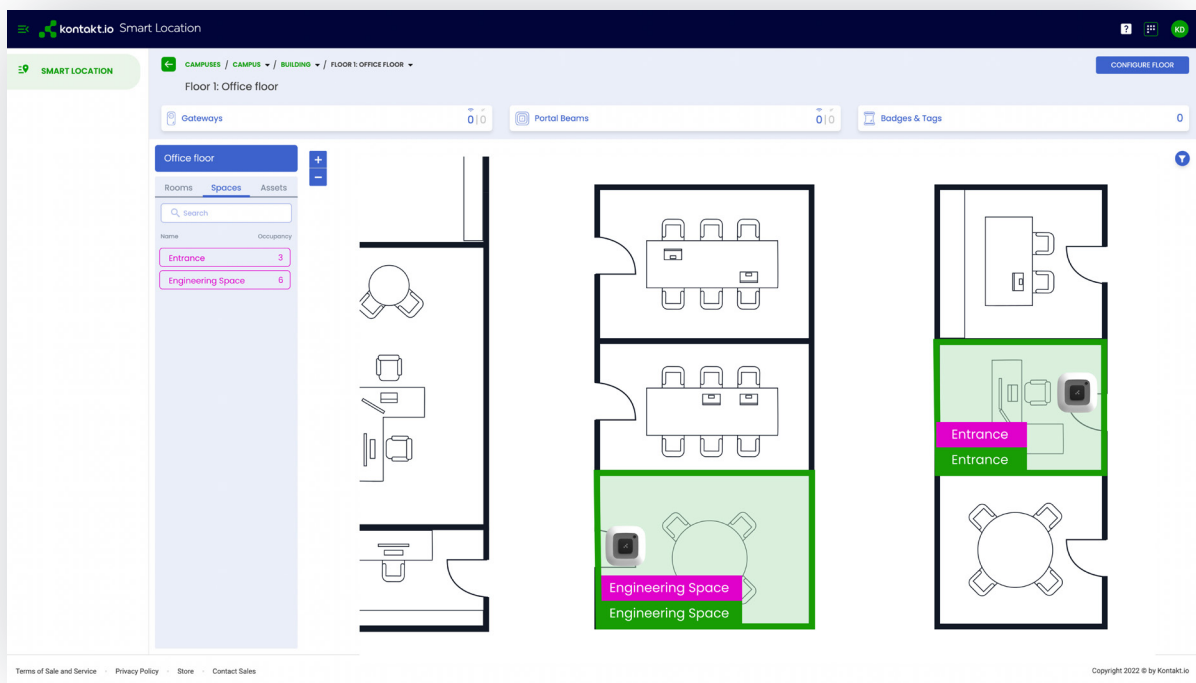
Seat-Level Occupancy Mode

Seat-Level Occupancy Infrastructure Requirements

Infrastructure	Requirement
Kio Cloud Smart Location	<p>Campus, buildings, building floors, floor plans, rooms.</p> <p>Each Portal Beam is placed into a Smart Location room at its exact install location.</p> <p>Seats are added to each room.</p>
Portal Beam Setup	<p>Portal Beam firmware: Latest version.</p> <p>Completed from the Kio Gateway Installer app at the time of installation.</p> <ul style="list-style-type: none">• Mode set to Specific Seats.• Portal Beam assigned to its Smart Location to map its exact install location.• Install height provided (floor to ceiling measurement).• Portal Beam assigned to the Smart Location seats at its install location.• In-app automated testing completed.
Portal Beam Installation	<p>Portal Beam located in each room or open space requiring seat level occupancy measurements.</p> <p>Portal Beam within Bluetooth range of a Kontakt.io Portal Light or BLE-enabled Access Point.</p>

Footfall Traffic Counting Mode

- Measures the number of people entering and exiting a space.
- Show availability of rooms such as offices, meeting rooms or patient examination rooms.
- Show occupancy levels of large rooms or spaces. For example, showing the number of patients currently in a waiting room.



Footfall Traffic Counting Mode

Footfall Traffic Counting Infrastructure Requirements

Infrastructure	Requirement
Kio Cloud Smart Location	<p>Campus, buildings, building floors, floor plans, rooms.</p> <p>Each Portal Beam is placed into a Smart Location room at its exact install location.</p> <p>Each room is assigned to a space. A space is a collection of rooms.</p>
Portal Beam Setup	<p>Portal Beam firmware: Latest version.</p> <p>Completed from the Kio Gateway Installer app at the time of installation.</p> <ul style="list-style-type: none">• Mode set to Traffic.• Portal Beam assigned to its Smart Location to map its exact install location.• Install height provided (floor to ceiling measurement).• In-app automated testing completed.
Portal Beam Installation	<p>Portal Beam located in each room requiring traffic measurements.</p> <p>Portal Beam is powered by AC power. Battery power is for backup power purposes only; operates for up to ten days on continuous battery backup power.</p> <p>Portal Beam within Bluetooth range of a Kontakt.io Portal Light or BLE-enabled Access Point.</p> <p>Portal Beam thermal imaging sensor oriented to face the interior of the room.</p>

Mobile Indoor Navigation Mode

With a built-in iBeacon, Portal Beams are the infrastructure for mobile-based wayfinding applications and SDKs. With Portal Beams deployed in every room, there is no additional need for a standalone iBeacon infrastructure.

Mobile Indoor Navigation Mode Requirements

By default this Mode is on.

Infrastructure	Requirement
Portal Beam Setup	<div>iBeacon - turned on.</div> <div>350 ms, TX Power (3).</div> <div>Mobile SDKs available.</div> <div>By default, this mode is turned on.</div>

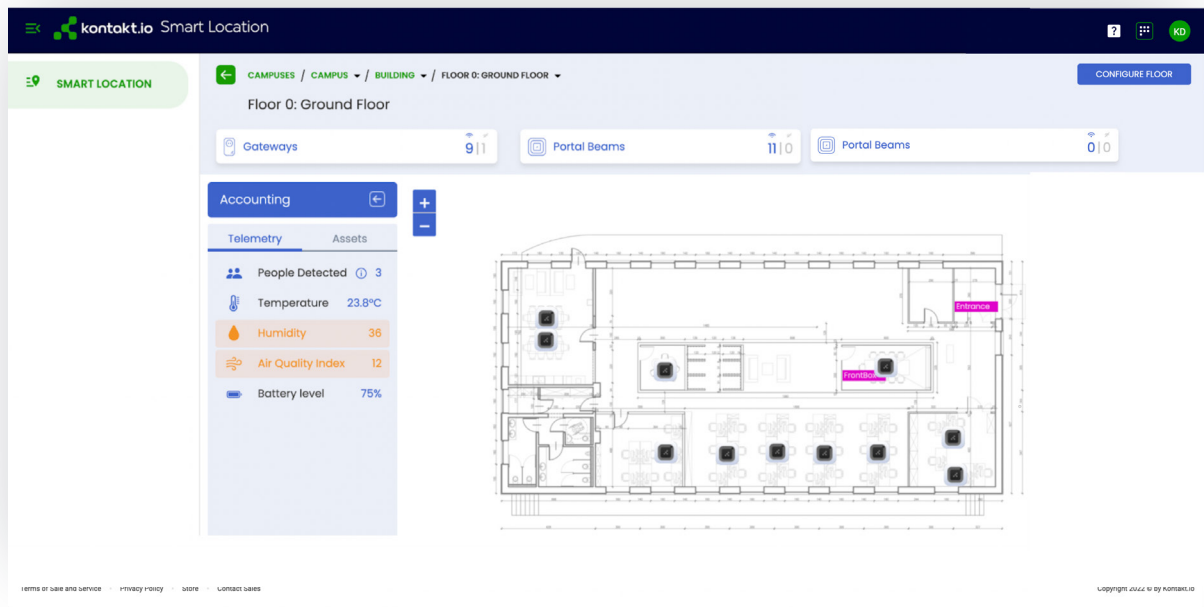


Environmental Monitoring Mode

With its rich set of sensors the Portal Beam helps to provide a safer and healthier workplace reducing the building's carbon footprint, and improving the employee experience. The Portal Beam is equipped with sensors that measure ambient air temperature, relative humidity, ambient light level, air pressure, and also provides a calculated Air Quality Index (AQI) level. Additional sensors are optional.

Use cases:

- Monitor the real-time environmental conditions in every room with an installed Portal Beam.



Asset & Badge Tracking Mode

In addition to occupancy capabilities and environmental monitoring, a Portal Beam's IR beaconing capability can also be enabled. IR beaconing is for room-level location tracking use cases, and works best with Kontakt.io IR-receiver equipped Bluetooth Low Energy (BLE) tags such as the Asset Tag 2, and Smart Badge.

Use cases:

- Track room-level location of wheelchairs, IV pumps, or other valuable assets, and see where the assets are located in real-time from a map.
- See real-time and historical location data of tracked assets.
- Room-level contact tracing, paring visitors with hosts.

Default Configuration & Battery Consumption

With the following default settings, a Portal Beam has a battery lifetime of 4 years.

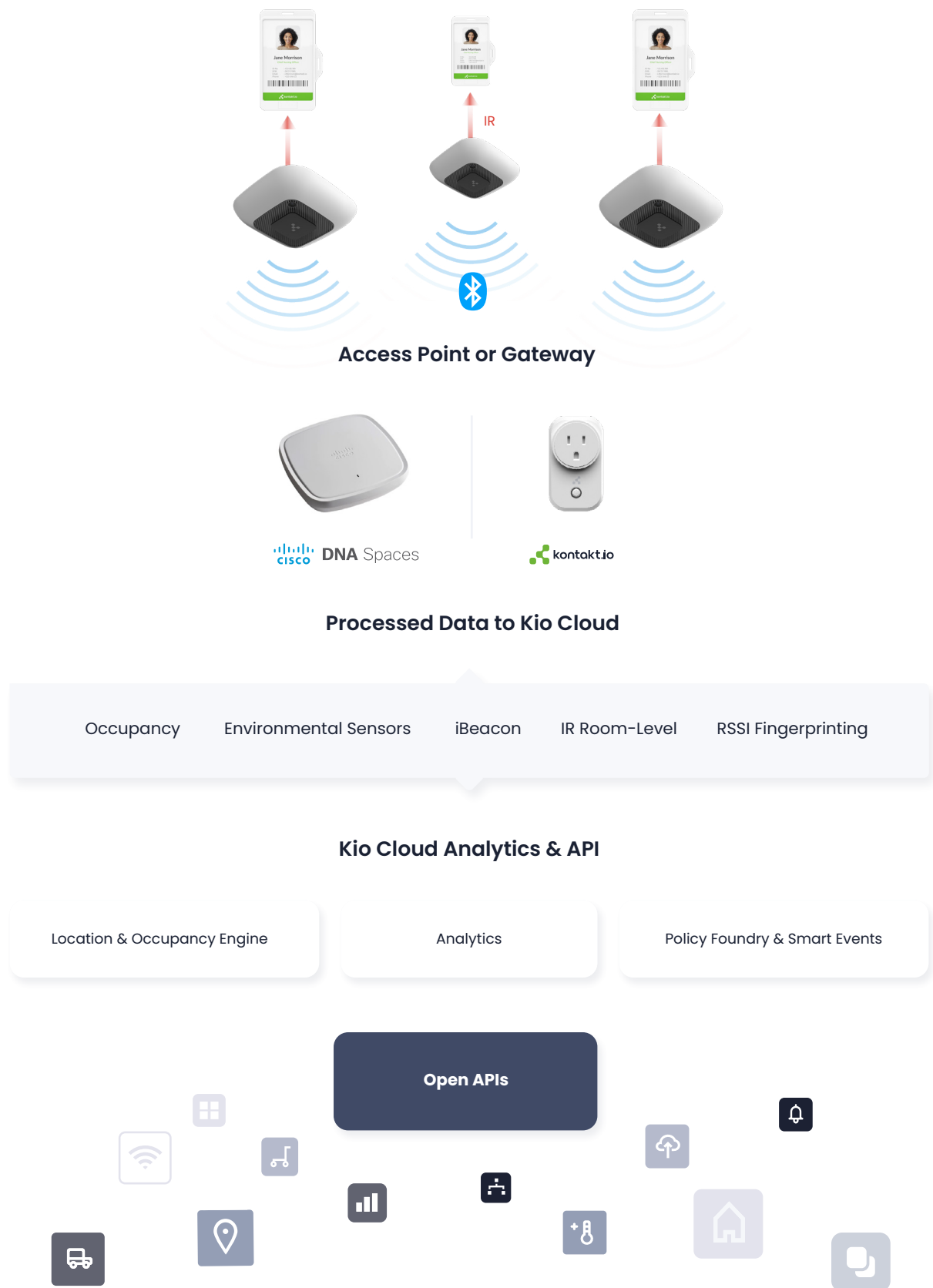
Use-Case	Settings
Room Occupancy	Portal Beam takes a thermal image every 60 seconds. Konakt.io Telemetry Packets enabled at 350ms and -12 dBm TX Power (3).
Seat-Level Occupancy	Portal Beam takes a thermal image every 60 seconds. Konakt.io Telemetry Packets enabled at 350 ms and -12 dBm TX Power (3).
Footfall Traffic Counting	This mode requires an external AC power source. The Portal Beam takes five a thermal image per second. Konakt.io Telemetry Packets enabled at 350ms and -12dBm TX Power (3).
Environment Monitoring	Sensor reading (probing) interval: 1 minute.
Mobile Indoor Navigation	iBeacon packets enabled at 350 ms and -12 dBm TX Power (3).
Asset & Badge Tracking	Infrared IR blink interval every second. BLE-RSSI Fingerprinting every.
Power Saving Mode	Power Saving mode is enabled and set to a daily 12 hour working-hour schedule.

Battery life can be extended by turning off specific modes, reducing the occupancy image taking rate, to increasing its active power-saving hours. Prior to making these types of configuration changes, please consult with the Konakt.io pre-sales team.

Kio Cloud & Portal Beam Architecture Benefits

Value Proposition	Benefits	Architecture
Complete Room Data for all use-cases	Quantify all human interactions. Count people and understand spatial intelligence in a privacy compliant way. Count identifiable people or assets using BLE and IR. Monitor the environment. Provide mobile phones with indoor positioning services.	<ul style="list-style-type: none">• Enable the Portal Beam Modes required for your use-case.• All in one device.
Reliable Data	99%+ room level certainty to enable all use-cases including critical workflows such as emergency call applications, or asset specific workflows	<ul style="list-style-type: none">• Interpolating and combining BLE, IR, and occupancy data depending on the use-case.• Low latency and room-level certainty.
Fastest time to value	Anyone can self install the Portal Beam in less than 60 seconds per room.	<ul style="list-style-type: none">• 100% wireless using BLE connectivity only.• No cabling or wires needed.• No VPNs, added software or complexities.• Users can quickly configure and customize sensors and policies / alerts in the Kio Cloud.• iOS and Android mobile apps with installation workflows.• No professional calibration needed.• Plug and Play Portal Lights function as BLE-to-WiFi gate ways for rapid installation in situations where no network is in place.
Most scalable and IT-friendly solution	Seamlessly integrates with existing IT and WiFi Access Points topology using BLE.	<ul style="list-style-type: none">• 100% cloud enabled.• Limited data throughput due to edge ML and processing.• Native two-way communication and integration with Cisco DNA Spaces.• Remote Device Management from onboarding, securing, managing, and configuration.
Delivered as a Service	No CapEx & continuous product enhancements.	<ul style="list-style-type: none">• Exclusive Kio Cloud and device firmware updates.
Open	No vendor lock-in, expand with third-party software applications or build your own.	<ul style="list-style-type: none">• Open APIs from the Kio Cloud.• Compatible with any other hardware thanks to the Kontakt.io open source Connectivity SDK and firmware libraries for both gateways and end-devices.
Affordable	Save money, lower total cost of ownership, higher ROI.	<ul style="list-style-type: none">• One Kio Cloud pricing, no hidden fees or additional costs.• Kio Cloud delivers apps providing unlimited innovation.

Kio Cloud Architecture



Technical Specifications

Electronics		nRF52832 IR Beam (4-directional LEDs) Environmental sensors: humidity, pressure, temperature, air quality, light sensor Buzzer (optional) Far-Infrared wide-angle thermal camera
Connectivity	Bluetooth Range	Bluetooth Low Energy 5.0 Up to 164 feet / 50 meters
Sensors	Temperature	Operating range: -40°F to 185°F / -40°C to 85°C Typical accuracy: +/- 1°
	Relative Humidity	Operating range: 0-100% Typical accuracy: 20-80% r.H.
	Air Quality Index	Range: 0 - 255 Value calculated based on multiple sensor readings
	Pressure	Operating range: 300-1100 hPa Typical accuracy: 0.6 hPa
	CO Sensor	Operating range: 1-1000 ppm
	Light Sensor	Operating range: 1-100%
Power	AC Input Voltage Batteries	DC 6V-24V barrel type terminal 6 AA Lithium 3.6V, 15.6 Ah (ER14505)
Environmental Requirements	Operation Temperature Operation Humidity	-40°F to +185°F / -40°C to + 85°C 10%-90%
Physical Specification	Dimensions Mounting	18x18x4.6 cm Dedicated mounting plate Reset button (factory reset button) RGB LED (device status information & alerting)

Accessories



T-Bar



Mounting plate

To learn more about the Portal Beam accessories contact us at
www.kontakt.io/contact-us



Get in Touch

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