INSTALLING WIRED GATEWAY

MOUNTING OPTIONS

MOUNTING OPTIONS
Select the mounting solution that best fits your needs. Mounting options can be found here.

GATEWAY INSTALLATION
VergeSense will grant access to the installer tool prior to the start of installation. Access the tool at cloud.vergesense.com on mobile or desktop.

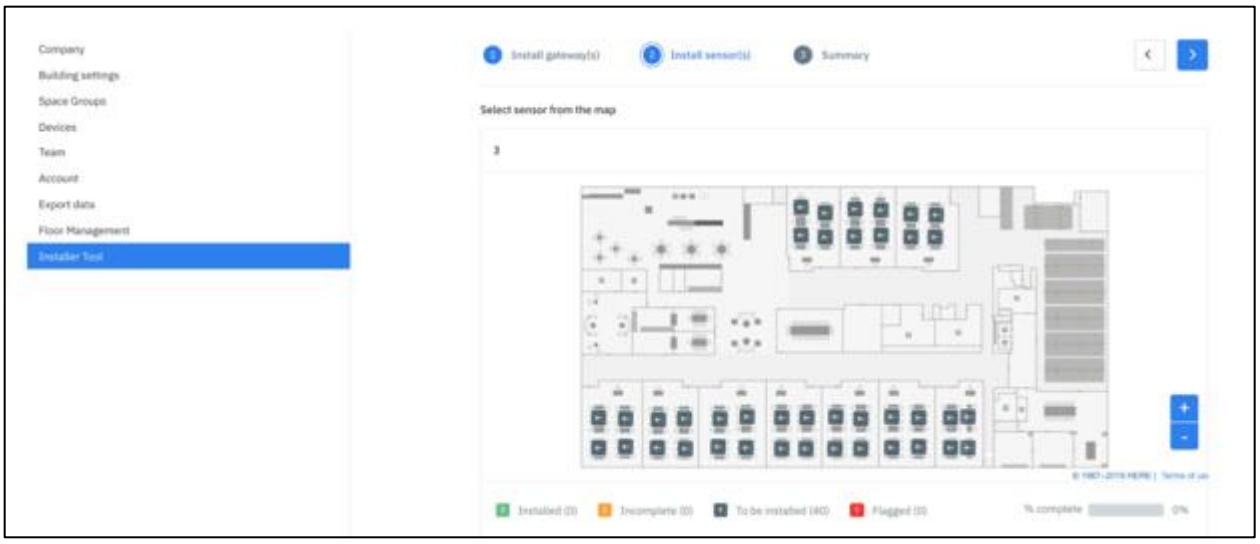
Physical Installation:

- Locate gateway on map
- Match orientation to map
- Connect device

Use Installer Tool to:

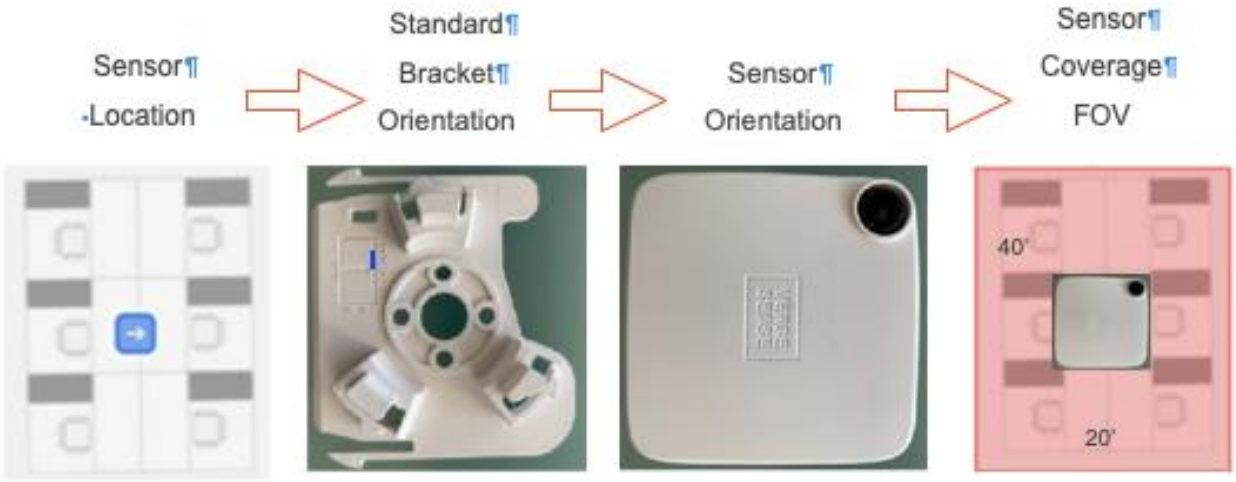
- Enter gateway ID
- Check connectivity
- Confirm coverage
- Publish

LOCATE GATEWAY MAPS
Use the Installer Tool to navigate the map. Note: the plan is to scale, zoom in to view exact GATEWAY location (usually centered above a group of desks, center of a room).



MATCH ORIENTATION ON MAP

It is important to match the orientation for proper coverage and data capture



MOUNT GATEWAYS

The recommended mounting option for wired GATEWAYs is to mount to the center of the tile. Select the mounting solution that best fits your needs. Mounting options can be found here.

Step#4·Cabling¶

- Pass·internet·cable·through·the·1/2"·opening¶
- Make·sure·there·is·~·3"·of·cable·available·to·successfully·attach·sensor¶
- Make·sure·cable·can·move·freely·through·opening¶
- Connect·cable·to·the·sensor¶

Step#5·Mounting·Sensor¶

- To·mount·the·sensor·align·bracket·prongs·with·housing·slots·and·twist·sensor·clockwise·until·it·locks¶

Step#6·Provisioning¶

- Refer·to·the·provisioning·guide·to·activate·sensor¶

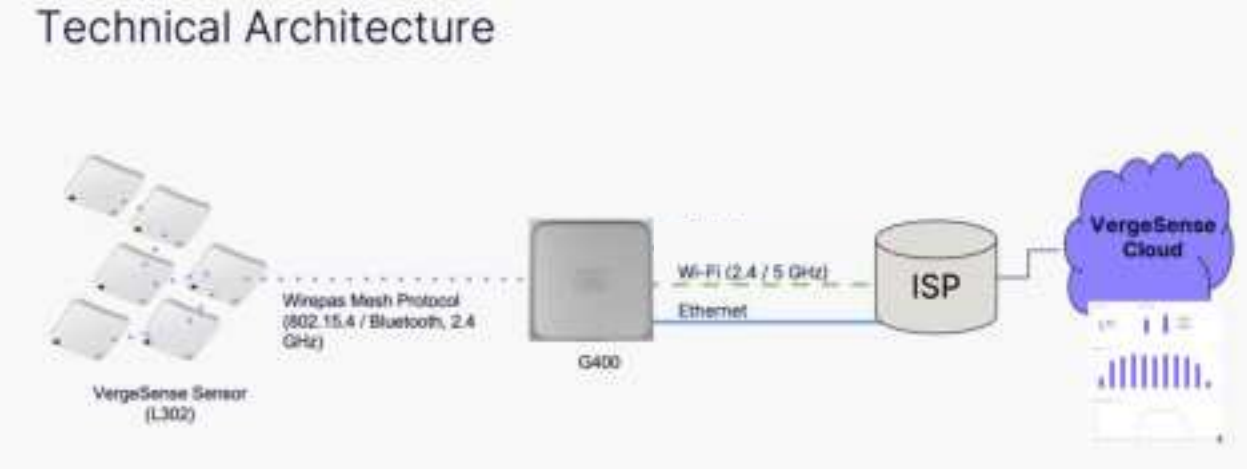
SET-UP: LED

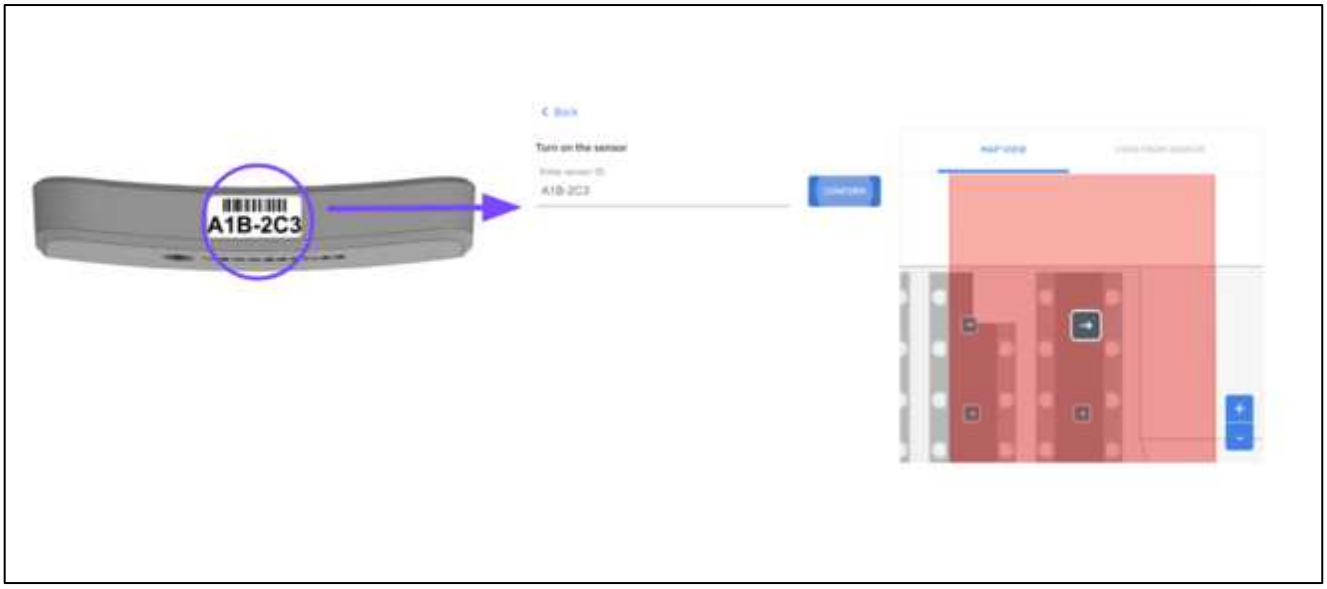
Once the new GATEWAY is installed, a front facing LED light will indicate the device's status. See table below for reference:

State	Time	Device Status	LED State
Off	0	No power to the device	All off
Power On	0 - 10s	Bootloader starts, linux kernel loaded	All off
Kernel Initialization	10s-15s	Linux kernel initialization	All on solid (white/yellow color)
Userspace Initialization	15s-20s	Userspace initialization	Red and blue on solid (purple color)
POST	20s -30s	Power on self test	Green on solid (green color)
POST Failure	30s+	Hardware failure detected	Red 500msec on-off cadence
Network Manager Start	30s+	Devices tries to connect to the local network	Green 500msec on-off cadence
MQTT Connection	30s+	Device is connected to the local network and attempting to connect to VS cloud	Blue 500 msec on-off cadence
Normal Operation	30s+	Indicate normal operation	All Off
Reset		Factory Reset	Blue on solid for 5-30s after release of reset button, then all off when reset is complete
USB Flash Drive		USB stick inserted	Blue on solid for 5-60s after insertion of USB stick, then all off when it's safe to remove the USB stick

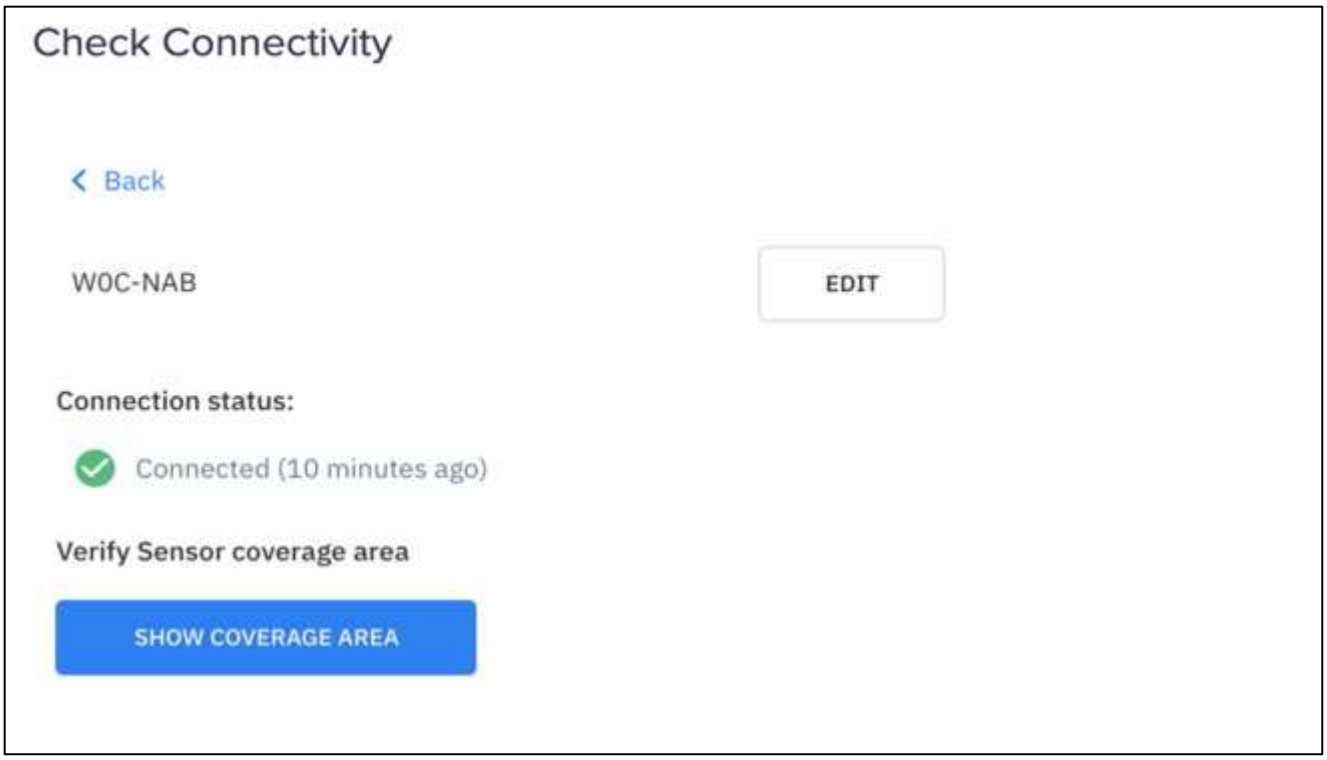
SET-UP: GATEWAY ID

Every GATEWAY has a unique ID that needs to be entered in the Installer Tool during installation. The GATEWAY ID is located on the back of the GATEWAY in the format "XXX-XXX". See example below.





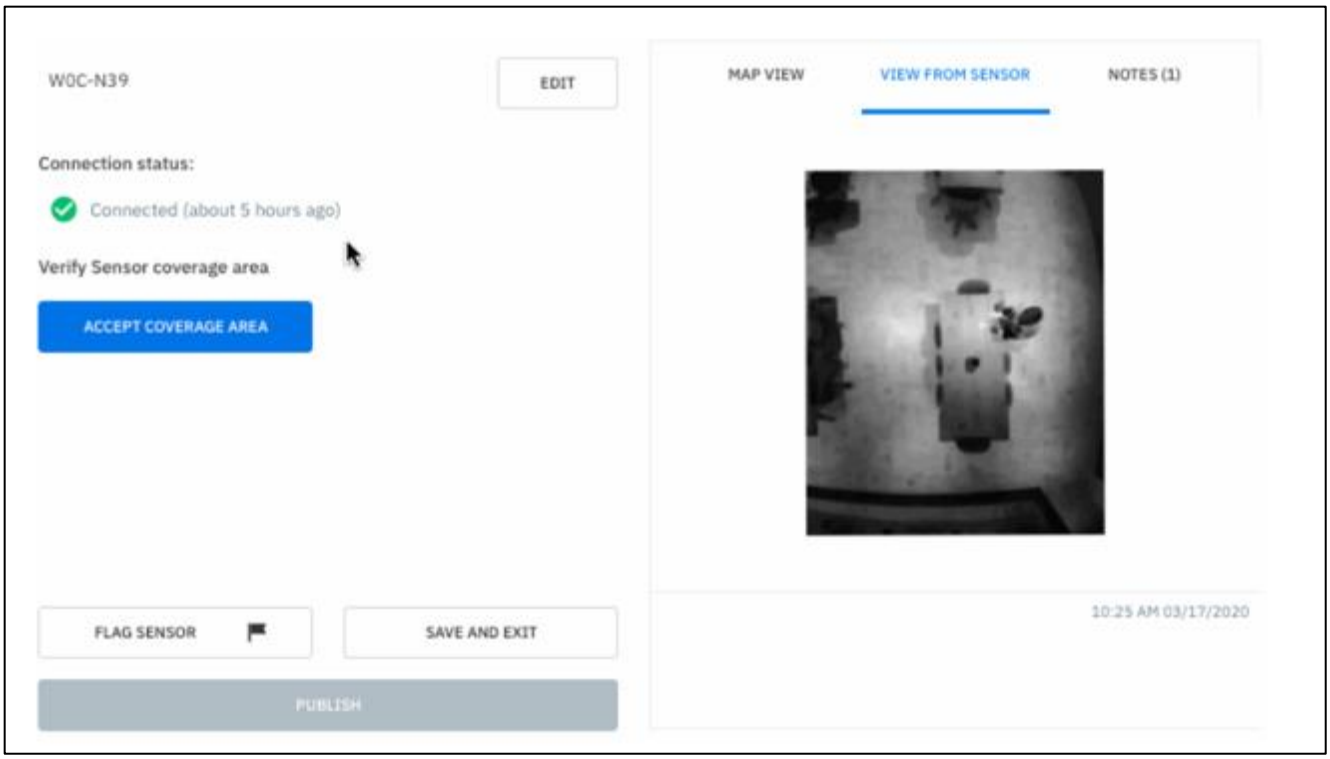
SET-UP: GATEWAY ID

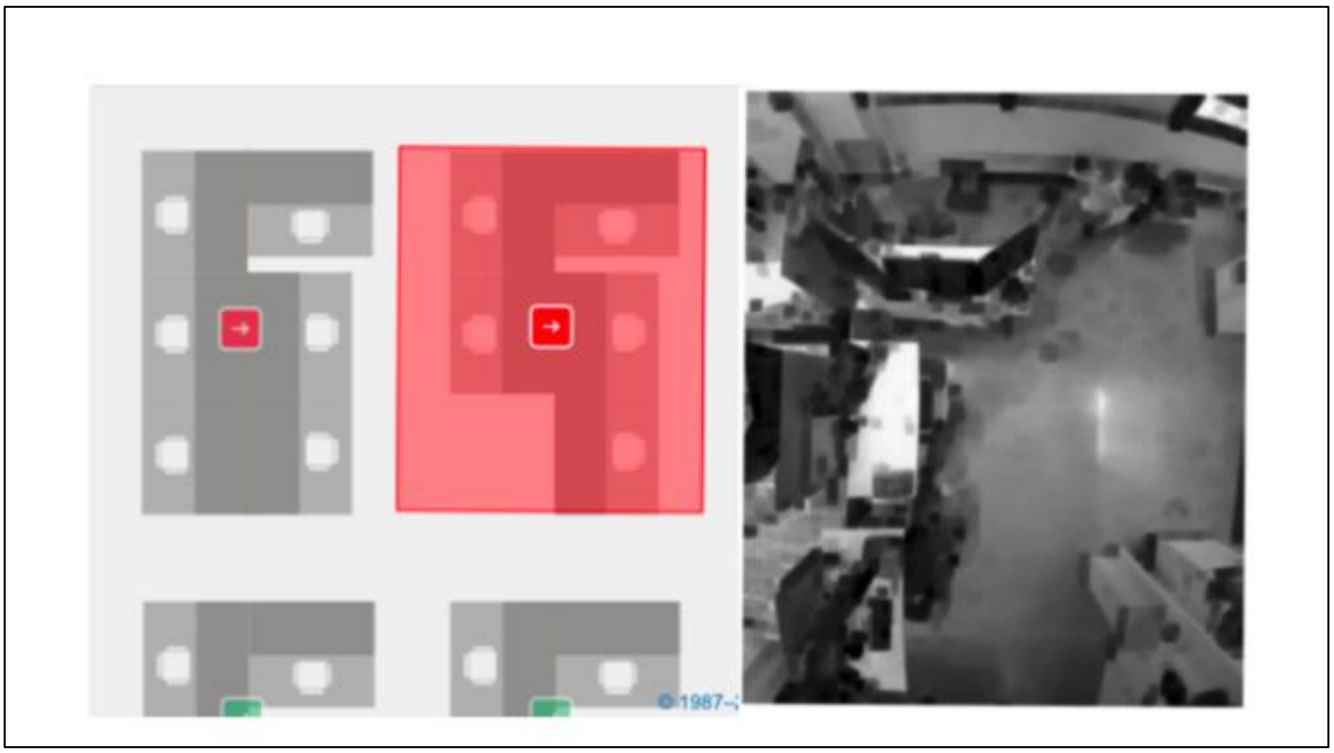


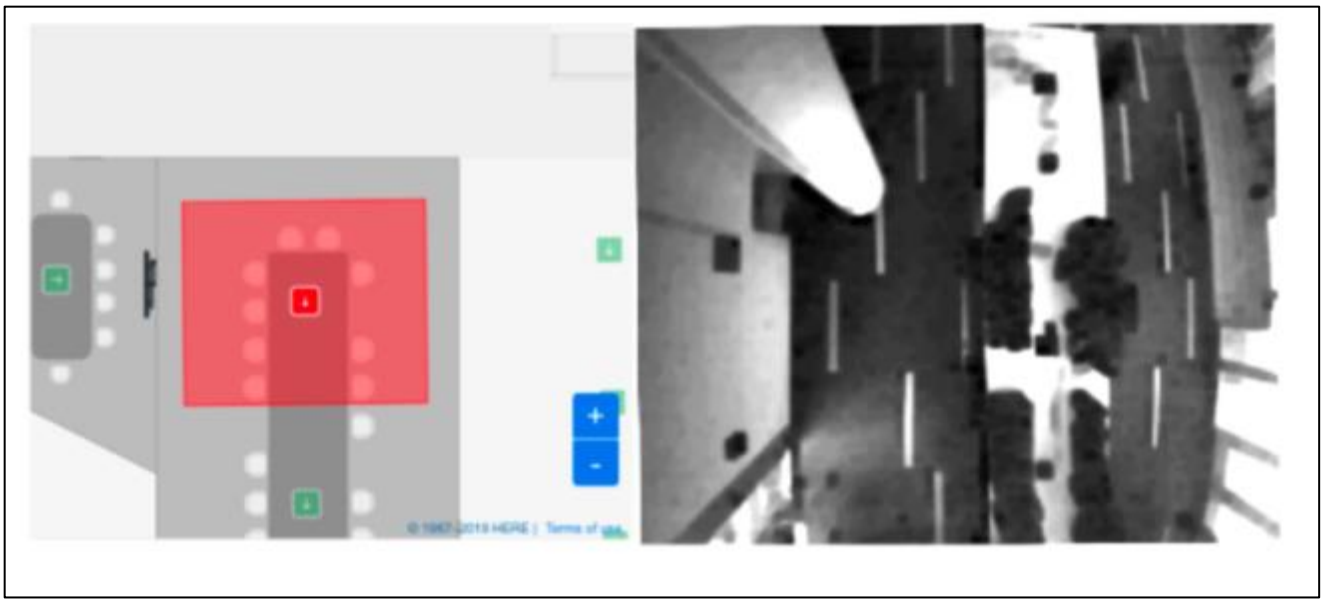
CONFIRM COVERAGE
Once GATEWAY is connected, check the coverage area to verify the desired space is being captured. The "Map View" shows the intended covered space as highlighted by the GATEWAY's field of view (red rectangle).

If the space is properly captured, select "Accept Coverage Area"

It is important to only "Accept Coverage Area" when the entire space is being captured. These are some examples of installed GATEWAYs that need to be adjusted.
In these cases the GATEWAYs were "Flagged" as they required an adjustment


W0C-N39
EDIT
MAP VIEW
VIEW FROM SENSOR
NOTES (1)
Connection status:
Connected (about 5 hours ago)
Verify Sensor coverage area
ACCEPT COVERAGE AREA
10:25 AM 03/17/2020
FLAG SENSOR
SAVE AND EXIT
PUBLISH





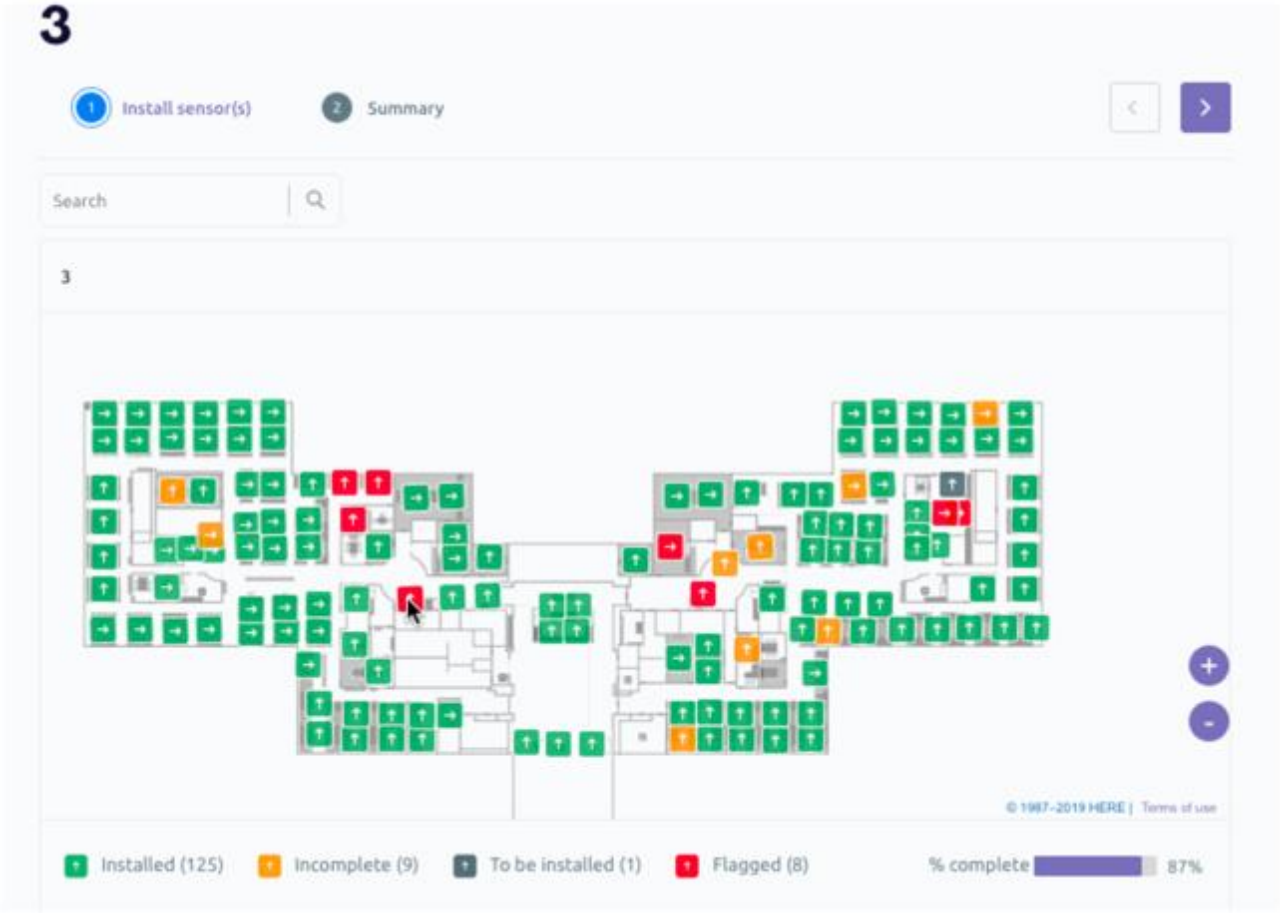
After the adjustment has been made, the GATEWAY must be "unflagged" before coverage can be accepted

ROTATING AND MOVING A GATEWAY ICON

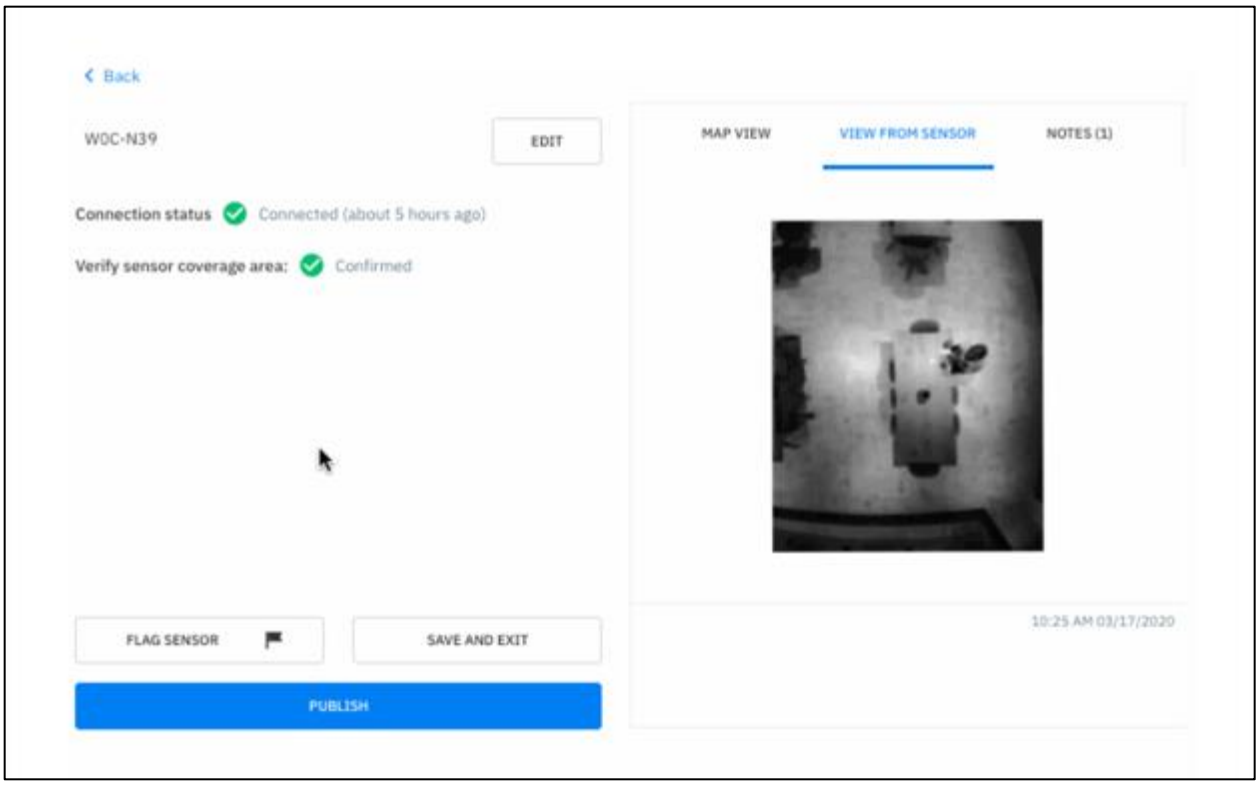
If the adjustments require the GATEWAY to be moved or rotated, the installer can update the GATEWAY icon to match the installed position.

Note: Cannot delete or add GATEWAY.

- Select a GATEWAY Select Edit
- Select GATEWAY icon
- Rotate or move as installed Confirm



PUBLISH
Publish the GATEWAY once it is successfully connected, and coverage is confirmed. The GATEWAY icon on the map will turn green indicating a successful installation.



For additional support, please review the Troubleshooting Section prior to contacting VergeSense (support@vergesense.com).

GENERAL SAFETY INFORMATION

- Do not immerse in water and do not spill or pour liquids of any kind onto or into any parts of it.
- Use an antistatic cloth. Please avoid water and liquid or solid cleaning products as they might damage the surface or internal electronics.
- Intended for indoor installation only, unless explicitly specified otherwise.
- Device and accessories may contain small parts. Keep them out of the reach of small children.
- Read the mounting instructions carefully before beginning installation. Failure to use the correct hardware or to follow the correct procedures could result in a hazardous situation to people and damage to the system.
- Use only attachments / accessories provided by VergeSense or explicitly recommended by VergeSense.
- Unauthorized opening, changing, or modifying the device will cause the warranty to lapse and may also result in the loss of CE / CFF conformity. In case of malfunction contact authorized service personnel.

WIRING GUIDELINES

These guidelines apply for any cable, supplied or not, used with a GATEWAY

- Cables must not pull or create a lateral stress on the connectors, i.e. they must be long enough.
- Cables must be installed in such a way not to present a trip hazard to personnel working in the vicinity of the equipment.
- Keep cables away from:
  - Sources of electrical noise such as radios, transmitters, and broadband amplifiers
  - Power lines
  - Fluorescent lighting fixtures
  - Liquids or moisture
  - Heat sources
- Always use standard telecommunication cables with a minimum of 26 AWG wire gauge.

INSTALLATION WARNINGS

- Compliance is required with respect to voltage, and current requirements indicated on the manufacturer's label. Connection to a different power source than those specified may result in improper operation, damage to the equipment or pose a fire hazard if the limitations are not followed.
- When PoE is used as power source, it should be connected to a power-over-ethernet (PoE) IEEE 802.3af compliant power source or an IEC62368 compliant limited power source.
- To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables.
- Voltages that present a shock hazard may exist on Power over Ethernet (PoE) circuits if interconnections are made using uninsulated exposed metal contacts, conductors, or terminals.
- Installation of the equipment must comply with local and national electrical codes.

FCC NOTICE:
This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between equipment and receiver.
- Consult the dealer or an experienced radio/TV technician for help.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Note: Changes or modifications to this unit not expressly approved by VergeSense could void the user's authority to operate the equipment.

FCC part 15.247 modular certification FCC ID: 2BFSEG400B
FCC part 15.247 modular certification FCC ID: 2BFSEG400W

CANADA
This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Canada (ISED) modular certification : 32309-G400B
Canada (ISED) modular certification : 32309-G400W

⚠ CAUTION - ELECTRIC PRODUCT.
As with all electrical products, precautions should be observed during the handling and use to prevent electrical shock. FOR INDOOR, DRY-LOCATION USE ONLY.

⚠ WARNING – Top metal housing may get hot during normal opeations. Use caution when removing GATEWAY.

⚠ CAUTION Do not touch metal housing during operations, the surface maybe hot. Disconnect power and let unit cool down for 5 minutes before removing GATEWAY.

The transformer is not a product and should be connected to the wall outlet by an adult. It should be periodically examined for conditions that may result in the risk of fire, electrical shock or injury to persons, such as damage to the cord, plug, blades, housing or other parts, and in the event of such conditions, the transformer must not be used until the damage is repaired.

- The product must be used only with the recommended transformer.
- The product is not to be connected to more than the recommended number of power supplies.
- Products to be cleaned with a liquid are to be disconnected from the transformer before cleaning.
- To clean transformer, disconnect it from the wall and clean with a cloth dampened with water. Do not immerse in water or use soap or other chemicals. Allow to dry before reusing. Do not connect to the AC outlet if wet or damaged.

Electrincal Ratings:

- PoE/44-57Vdc
- Power Consumption: 5.5W

EUROPE:
VergeSense declares that Lighthouse comply with the essential requirements and other relevant provisions of Radio Equipment Directive 2014/53/EU. A copy of the Declaration of Conformity is available on request. VergeSense, 4 Embarcadero, Suite 1500, San Francisco, CA, 94111

Environmental Phenomena
The unit may malfunction if subjected to radio-frequency interference. It should revert to normal operation when the interference stops. In the unlikely event of an electrostatic discharge, the unit may malfunction and lose memory, requiring the user to reset the device by removing and reinstalling the batteries.

Recycle Information
For information on how this product might be recycled, email to support@vergesense.com

Customer Service Contact
For customer service, email to support@vergesense.com

Limited Warranty
Product is subject to a limited 36-month warranty. Email our customer service at support@vergesense.com details of the warranty provided in your country. VergeSense shall not be liable for any incidental or consequential damages for the breach or any warranty on this product. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, or limitation on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you.

Authorized Territories
The Lighthouse is authorized for use in the following countries:

Australia, Austria, Bangladesh, Belgium, Bulgaria, Canada, Comoros, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Japan, Georgia, Germany, Greece, Guadeloupe, Hong Kong, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Martinique, Myanmar, Netherlands, New Zealand, Norway, India, Poland, Portugal, Romania, Saint Barthelemy, Saint Martin, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turks and Caicos, United Kingdom, UAE USA.

Environmental Compliance:

RoHS Compliance
This product is in compliance with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) and its amendments.

REACH
REACH (Registration, Evaluation, Authorization and Restriction of Chemicals, EC No 1907/2006) is the EU chemical substances regulatory framework. Google complies with all requirements of the regulation and we are committed to providing our customers with information about the presence of REACH Substances of Very High Concern (SVHCs).

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must be at least 20 cm from the user and must not be co-located or operating in conjunction with any other antenna or transmitter.

This device complies with Innovation, Science and Economic Development Canada's licence-exempt RSSs. Operation is subject to the following two conditions:
(1) This device may not cause interference; and
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme aux flux RSS exemptés de licence d'Innovation, Science et Développement économique Canada. L'opération est soumise aux deux conditions suivantes:
(1) Cet appareil ne doit pas provoquer d'interférence; et
(2) Cet appareil doit accepter toute interférence, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.

This equipment complies with the IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

Énoncé d'exposition aux rayonnements: Cet équipement est conforme aux limites d'exposition aux rayonnements ioniques RSS-102 Pour un environnement incontrôlé. Cet équipement doit être installé et utilisé avec un Distance minimale de 20 cm entre le radiateur et votre corps.

EUROPE: CE

VergeSense declares this sensor with the essential requirements and other relevant provisions of Radio Equipment Directive 2014/53/EU. A copy of the Declaration of Conformity is available on request. VergeSense, 4 Embarcadero, Suite 1500, San Francisco, CA, 94111

Environmental Phenomena

The unit may malfunction if subjected to radio-frequency interference. It should revert to normal operation when the interference stops. If not, it may become necessary to turn the power off and back on, or remove and reinstall the batteries. In the unlikely event of an electrostatic discharge, the unit may malfunction and lose memory, requiring the user to reset the device by removing and reinstalling the batteries.

This sensor is authorized for use in the following countries under EU:

Austria, Bangladesh, Belgium, Bulgaria, Comoros, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Guadeloupe, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Martinique, Myanmar, Netherlands, Norway, Poland, Portugal, Romania, Saint Barthelemy, Saint Martin, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turks, and Caicos,

United Kingdom UKCA

The sensor complies to UK Conformity Assessed markings applicable requirements for products sold within Great Britain. UKCA marking became part of UK law on exit day, 31 January 2020, with the coming into force of The Product Safety and Metrology etc.

Australia: RCM

This sensor complies with the requirements of the relevant ACMA standards made under the radio communications Act 1992 and the Telecommunications Act 1997

Israel: MoC

The sensor complies with built-in wireless technologies regulations. This regulatory approval issued by the Israeli Ministry of Communications (MoC) and is valid for five years. The MoC certification is based on the requirements of the Radio Equipment Directive (RED) for market approval in Europe.

VergeSense VS-E106 הוראות בטיחות

Malaysia: MCMC

This sensor complies to Malaysia new SRD Technical Standard, Technical Code MCMC MTSFB TC T007:2020.

Nigeria: NCC

This sensor complies to the Nigerian Communications Commission, the independent regulatory authority for the telecommunications industry in Nigeria. The NCC is responsibility of regulating the supply of telecommunications services and facilities, promoting competition, and setting performance standards for telephone services in Nigeria.

Philippines: NTC

This sensor complies with the NTC (Philippines' National Telecommunications Commission). The NTC is the government agency responsible for the supervision, adjudication, and control over telecommunications products and services all over the Philippines.

Brazil:-Anatel

The sensor approved by the local authority Agência Nacional De Telecomunicações (Anatel). The certification is based on national specifications for the testing and certification process and is a condition for market approval in Brazil.

India:-WPS

This sensor complies with the requirements of Generation of Equipment Type Approval (ETA) through self-declaration issued under O.M. No. ETA-WPC-/Policy/2018-19 dated 26 February, 2019].

Costa-Rica:-SUTEL

This sensor complies with SUTEL certification, a basis for a radio technologies approval in a region

Hong-Kong:-OFCA

This sensor complies with Hong Kong Telecommunication equipment Evaluation and Certification (HKTEC) Scheme by the Office of the Communications Authority (OFCA) to carry out the testing and certification of telecommunication equipment to be used and sold in the Hong Kong market.

Certified for use in Hong Kong
經驗證可在香港使用
Certificate No. 證書號碼
US0012200002

通訊事務管理局
COMMUNICATIONS AUTHORITY

Japan:-VCCI-Mark-Certification

R 201-180720

This sensor complies to Voluntary Control Council for Interference by Information Technology Equipment (VCCI), in cooperation with related industries, the voluntary control of radio disturbances emitted from information technology equipment (ITE).

Qatar

This sensor has been granted certificate approval for RTTE Equipment by Communications Regulatory authority state of Qatar

Singapore: IMDA

Complies with
IMDA Standards
DB106057

This sensor complies with Inform Media Development Authority of Singapore (IMDA).

Vietnam

This sensor is exempted from regulatory type approval or energy certification

Taiwan: CCA

This sensor is certified with CCA Type Approval are mainly telecommunication devices that are using the mobile communication standards.

South Africa: ICASA

This sensor complies with independent communications authority of South Africa, ICASA. A certification by the South African authority ICASA (Independent Communications Authority of South Africa) provides access to the South African market for manufacturers of wireless technology products

UAE: TRA

This sensor is certified to Telecommunications Regulatory Authority TRA of UAE.

Frequently Asked Questions

How many gateways do I need? The number of required gateways varies based on the distribution of sensor locations in a building. Each floor requires a minimum of 1 gateway and each gateway can support a mesh network of up to 50 sensors.Gateways must be within 40 ft of at least 10% of sensors, and sensors must be within 40 feet of each other. Because the sensors create a mesh network, not all sensors need to connect to the gateway directly.

What protocols are used to send data from sensors to the gateway and from the gateway to the cloud? VergeSense AI on the VergeSense sensors processes raw data into JSON and sends it to VergeSense Gateways over a proprietary wireless mesh network secured with AES-128 encryption. Processed data (anonymous personcounts) is then sent from the Gateway to the VergeSense cloud over MQTT.

How is data encrypted? Data-in-motion between sensors and gateway is encrypted using AES. Data-in-motion between gateways and the cloud is secured using TLS 1.2over MQTT. All cloud-hosted databases are encrypted using AES-256.

What is the volume of network traffic? Do the sensors cause network interference?Data is sent in small packets (350 bytes) asynchronously thus preventing spikes in network traffic.

Do the sensors cause network interference? In addition to very short radio transmissions, sensors use dynamic local channel selection, dynamic power output,and other techniques to ensure no interference with your networks and RF environment.

How do sensors receive firmware updates? The sensors automatically deploy device updates when available. As the gateways send data to the cloud, they also check for available device updates. If an update is available, it is downloaded and installed. For Security purposes, all communication is initiated outbound from the sensor or gateway to the cloud; there is no cloud-to-sensor-initiated communication inbound.

What type of data is collected? Where is data processed? The sensor wakes and captures a raw data point using its wide-angle (170 degrees) fisheye lens every 2 minutes. The raw data point is a 352x288 array of pixels which is processed by VergesSene AI on the VergeSense Sensor into anonymous JSON data (occupancy count). Processing occurs within seconds, and the raw sensor data is discarded (it is only temporarily stored in RAM). Processed data is transmitted to VergeSsenes cloud analytics portal over MQTT using TLS 1.2 encryption.

How long is raw sensor data stored? Raw sensor data is processed and discarded within seconds.