

# Installation Manual – Smart Office

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This installation manual describes how to install Yanzi IoT infrastructure and sensors in offices.

## **IMPORTANT:**

This manual contains important safety, usage, and service information.

We strongly urge you to read this manual in its entirety before using the products.





## Disclaimer

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### Using your Yanzi products safely

- Follow the battery requirements in section 11 before installing any batteries.
- Never force a connector into a port. If the connector and port don't join with reasonable ease, they probably don't match. Make sure that the connector matches the port and that you have positioned the connector correctly in relation to the port.
- Protect your Yanzi products from direct sunlight
- Keep away the Yanzi products from sources of liquid, e.g. drinks, bathtubs, washbasins, shower stalls and so on.
- Use Yanzi products in environments according to specification. Most products are targeted for indoor office use only.
- Only use Yanzi provided power supplies for products requiring external power.
- There are no user-serviceable parts inside Yanzi products. For service personnel: Always unplug external power supply, remove batteries, and turn off UPS battery before service operation.

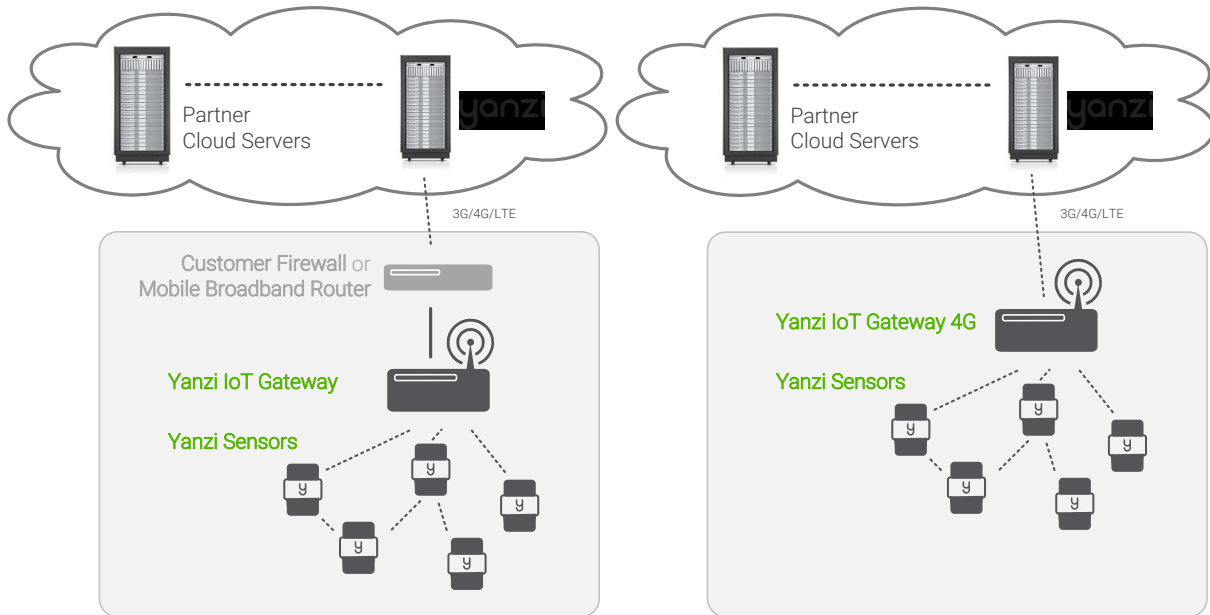
### About handling

Your Yanzi products may be damaged by improper storage or handling. Take caution not to drop them during transport and installation. The passive infrared sensor elements (PIR) (used in e.g. Yanzi **Motion**, Yanzi **Motion+**, Yanzi **Presence**, and Yanzi **Presence Mini**) are particularly sensitive to external force, so handle them with extra care.

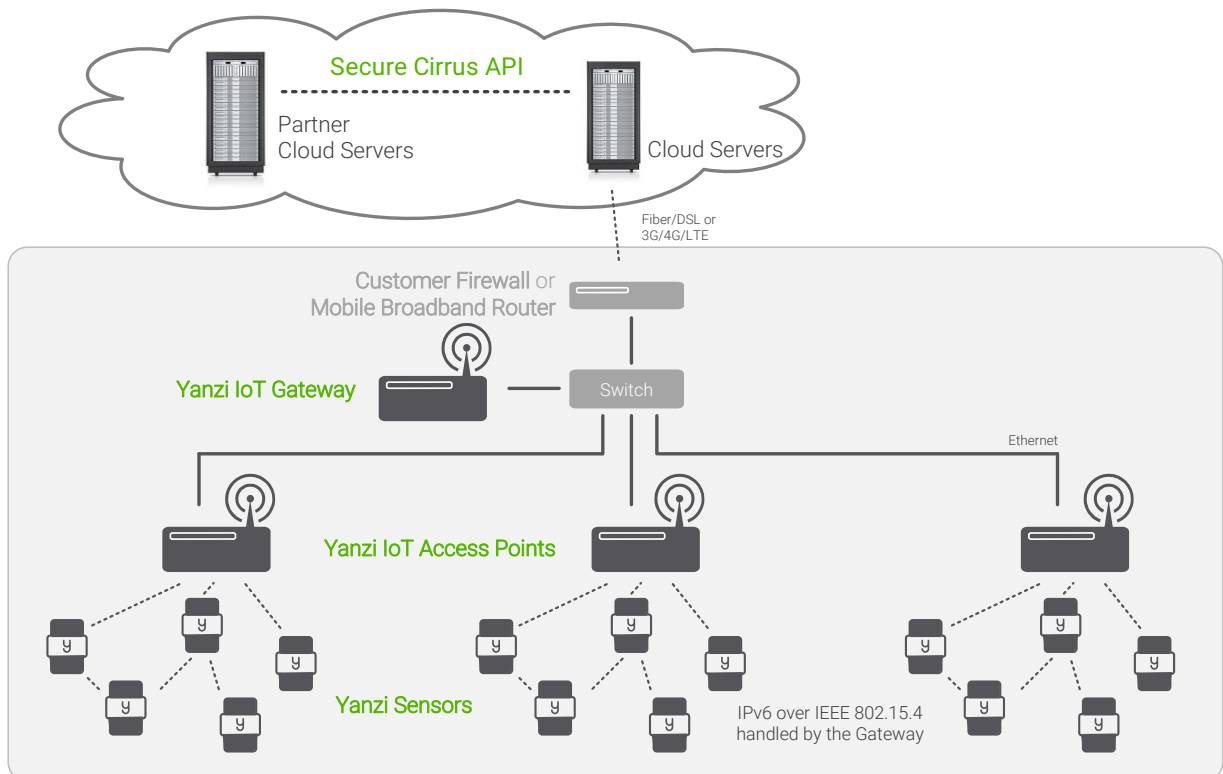
**WARNING:** Do not attempt to open or disassemble any Yanzi products. You run the risk of electric shock and voiding the limited warranty. No user-serviceable parts are inside.







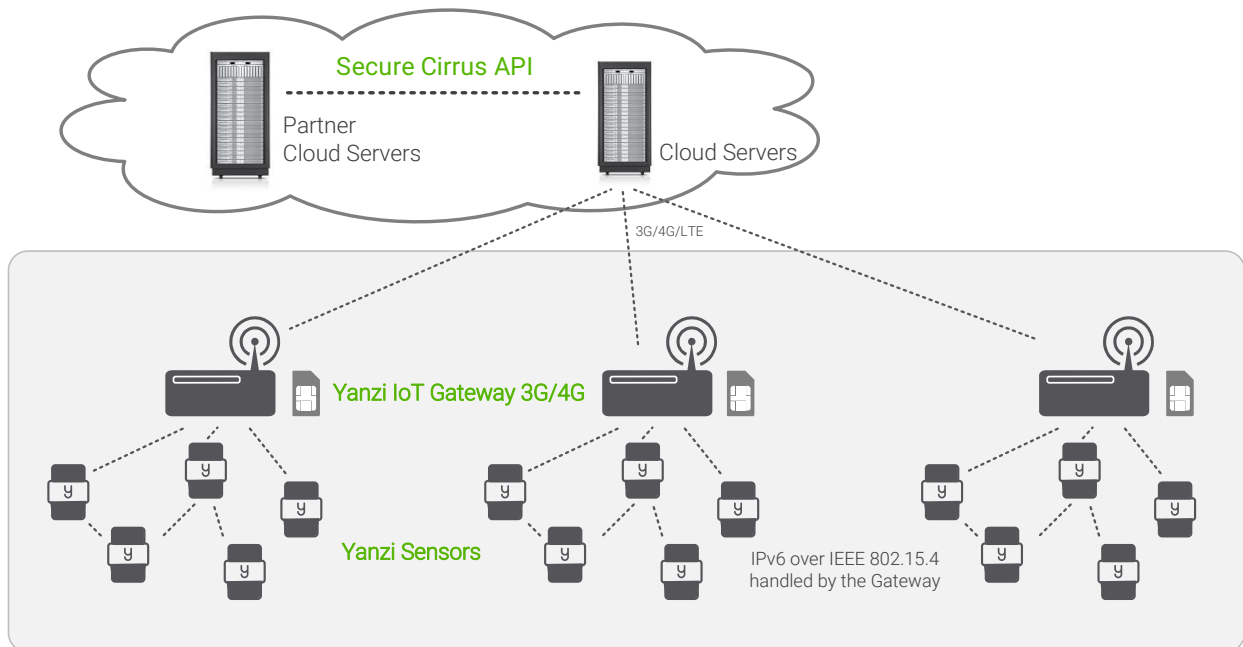
Large system reusing Ethernet infrastructure in building and where Internet connectivity can be provided by sharing a port on the existing firewall or using an external mobile broadband router.



- Gateway and Access Points needs a network with a DHCP server to get IP addresses assigned.
- The Gateway communicates with the Access Points using UPnP and SSL over Ethernet
- Internet connection only requires outgoing port 443 and 4445. No inwards connection required. Gateway connects automatically to the Yanzi server.
- All communication links are encrypted

- PoE switch connects and powers all IoT Access Points (when AP has PoE support)
- Optional UPS on PoE switch and Gateway to enable operation when power is lost

Large system completely stand-alone without using any existing infrastructure.





## 2.2 Use Cases

Depending on which use case to cover, the type and position of sensors may vary. Two typical use cases are shown below for space utilization and comfortability.

### 2.2.1 Space Utilization

For space utilization, Yanzi Motion/Presence sensors are added under the table at each work desk chair and at each chair of larger conference rooms (typically rooms with 6 chairs or more) to detect usage. For room usage, Yanzi Motion/Presence or Yanzi Motion+ is placed on the wall (rooms larger than 20m<sup>2</sup> are recommended to use two sensors to make sure the whole room is covered). Selection between Motion/Presence sensor and Motion+ sensor depends on if comfortability use case also should be covered as the Motion+ sensor monitors more things than the Motion/Presence sensor.

Motion/Presence sensors may also be used for restroom utilization to monitor each stall as well as the washroom.



Footfall cameras may be placed in the ceiling of each entrance to the building and can as well be placed at the entrance to any area where specific information is wanted. The footfall cameras are connected to the Gateway using Ethernet/PoE. This proposal do not focus on footfall cameras.

### 2.2.2 Comfortability

For comfortability, the work environment is monitored using for example CO<sub>2</sub>, temperature, humidity, barometric pressure, volatile organic compounds (VOC), ambient light and ambient noise sensors. Yanzi Comfort sensors are placed in each room (conference room, phone booths, locker room, etc.) where people are present for longer periods of time as well spread out in open work spaces. In open work spaces, recommendation is to use one Yanzi Comfort for each 15-25 work desks.

Yanzi Motion+ are used to monitor occupancy and light at work desks (preferably placed in the ceiling where it covers about 6-8 work desks depending on height of ceiling). It is also used to monitor utilization of smaller rooms such as conference rooms, phone booths, locker rooms, storage rooms, kitchens, restrooms, etc.

## 2.3 Installation Tool

One of the important parts after the installation is to know where sensors have been placed. The mapping between the sensor unique ID and the physical location is done at time of installation using the Yanzi installation tool in Yanzi Live. This is a browser based installation tool that allows for quick installation of many sensors.

Prior to installation, make sure the floor map(s) has been provided to Yanzi and added to your account.

## 2.4 Privacy

It is strongly recommended to inform personnel of the reasons for the installation, that their privacy is respected and maintained at all times, and clarify that no images, video, or sound is ever recorded.

The correct process for this is up to each company to decide but Yanzi recommends the following as a basis:

1. Send an email with information two weeks prior to installation
2. Leave a note on each person's desk at the time of installation
3. Send an email again after installation is done reminding why this is done

See section 15 for examples of wording.

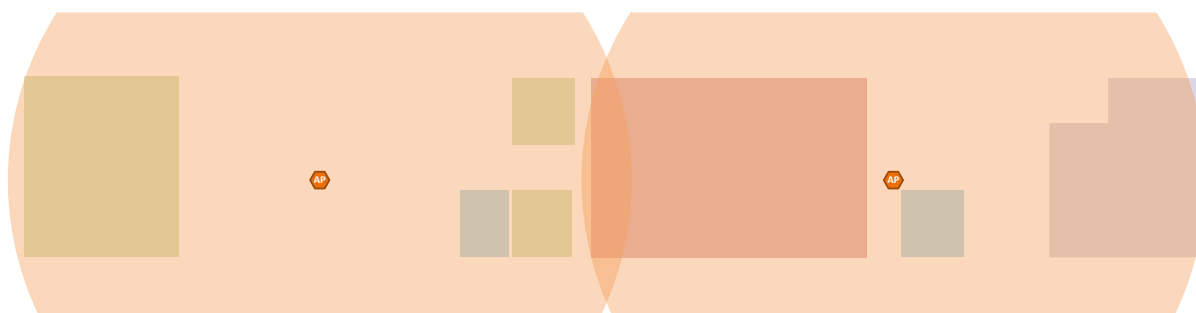
### 3. Installation of Infrastructure

Gateways are recommended to be registered prior to installation. Register means connecting the Gateway to a specific account. Users can then be added or removed from this account to control access. Registration is done using the installation tool or provided as remote support by Yanzi. Yanzi needs the Gateway ID (printed on the Gateway label), the location name it should have, as well as a user with administrative rights for this account.

Make sure the infrastructure is always built prior to installing any sensors. Install the Gateway and connect it to Internet. Install the Access Points and connect them to the same network as the Gateway according to the pictures above.

The wireless IoT network created around Access Points have a range of about 500-1,500 m<sup>2</sup> (~ 5,000-15,000ft<sup>2</sup>). The actual range depends heavily on walls, obstacles, materials, and number of potential mesh nodes (This is very similar to WiFi access points). Wireless coverage is affected for example by elevator shafts (lots of metal), bathrooms (water and thick walls), and other radio disturbances such as WiFi access points and microwave ovens.

IoT Access Points (or Gateways with mobile broadband) is shown below with an approximated wireless coverage shown as orange circles. In this specific building, two Access Points per floor is enough.



## 3.1 Yanzi IoT Gateway overview and installation

The following applies to all variants of Yanzi IoT Gateway (DR2-88xx), Yanzi IoT Gateway Plus (DR2-89xx), and Yanzi IoT Gateway 2 (DR3-314x). For more details on gateway LED behavior, see section 3.3.

### Installing and registering a gateway

1. Insert the included power adapter to a power outlet and plug in the cable to the gateway. The power LED should now turn solid green.
2. Optional: *Enable the gateways built in UPS by pushing the switch located on the left side of the gateway towards the grey sleeve (Applies to Yanzi Gateway and Yanzi Gateway Plus).*
3. Connect the gateway to internet
  - a. For Ethernet based gateway: *Connect an Ethernet cable to the gateways Ethernet port. Connect the cables other end to an available switch/router port with internet access.*
  - b. For 3G based gateways: *Once the gateway has booted, it will search for a cellular network, please allow up to 10 minutes for this to complete.*
4. Once step 3 is complete and the gateway has established a connection to the Yanzi cloud, the status LED should blink green.
5. Register the gateway – follow the below steps;
  - a. Use Googles Chrome browser, go to the link specified by Yanzi, typically something like <https://cirrus.yanzi.se>
  - b. Sign in using the credentials provided by Yanzi, email and password
  - c. In the upper right hand corner (below the search field) you will find a “**+Install Gateway**” button. Click this and enter the details in the ‘Connect New Gateway’ field
    - i. Gateway ID: *Fill in your gateways ID, located on the silver label on the gateway*
    - ii. Location Name: *Fill in the name of your Location, e.g. “Yanzi HQ”.*
    - iii. Account: *Select an account to link this Location to and click register*
6. Once the registration process is complete, the status LED will turn solid green.

## 3.2 Gateway Functions

| Port             | Description  |
|------------------|--|
| Power Port       | Only use Yanzi Wall Adapter according to Gateway datasheet, typically 12V/2A.                    |
| Ethernet Port    | 1x 10/100 Ethernet port (DR2-88xx)<br>2x 10/100 Ethernet ports (DR2-89xx and DR3-3143)           |
| UPS Switch       | Enables/disables built-in battery backup. Push to front to disable. Push towards rear to enable. |
| Power/Status LED | Indicates power status according to section 3.3.   |
| USB Port         | Reserved. Do not use.  |











## 5.5 Sensor buttons and switches



All Yanzi sensors have a *status button*, a short press on the status button will indicate the status using the LED, see 9.1 for LED behavior.

Some sensors ship with batteries already inserted and therefore have a *power switch*. Carefully push the switch to its upper position to turn on the sensor. Should you want to turn off the sensor, carefully push the switch to its downward position. Use a sharp tool such as a paper clip or mobile phone SIM card ejector to flip the switch.

Yanzi Motion+ shown as example above

## 6. Placement of Sensors

### General tips on placement

- Try to place the sensors in discrete locations
- Place sensors along walls at about 150-170 cm (60-70 inches) from floor
- Sensors are attached using adhesive tape
- Target wood, plastic, or metal surfaces that are flat
- Avoid wall papers as they may break if sensor must be removed
- Avoid painted walls when using adhesive tape as modern paint is efficient in repelling adhesive tape
- Dry target surface with a cloth to remove dust, dirt, and grease
- Remove tape cover and press firmly ON THE SLEEVE for 10 seconds. After 10 seconds, the adhesive tape is strong enough to hold the sensor. Full adhesiveness is reached after 72 hours.

### Yanzi **Motion+**

- Place on wall of smaller rooms such as conference rooms and phone booths
- Place in ceiling above groups of 4-8 work desks

### Yanzi **Comfort**

- Place on wall not close to work desk
- Place vertically with the power connector facing downwards
- Avoid placement near any air ventilation inlets or outlets as this may cause inaccurate readings
- Requires a power outlet within 0.5 meters (longer cables available as accessory)

### Yanzi **Presence** for work desks

- Place under work desk about an arm's length from edge

### Yanzi **Presence** for conference room chairs

- Place under conference room table at each chair about an arms length from edge

### Yanzi **Presence** for conference room corner

- Place in corner of smaller rooms and along walls in larger rooms
- Face away from windows to avoid direct sunlight
- Face away from door to avoid detecting people walking outside the room
- Use multiple sensors for large rooms (>20m<sup>2</sup>)

## 6.1 Occupancy detection cones

For occupancy monitoring, the default detection cone (field of view) of a PIR sensor may not always be optimal. Yanzi supplies field of view limiters with the simple operation of covering the lens so the detection cone becomes smaller. This way the detection cone can be optimized for different use cases. This section describes the actual detection cone for different types of field of view limiters.

### 6.1.1 Field of view limiters for Presence Mini

All the following information assume the distance of the sensor from the floor is 640mm [25 inches].

|                    |   |  |
|--------------------|---|--|
| Rectangular shape  | FORM I  |  |
| Typical use case   | Normal work desks and wide standing desks with one seat |  |
| Rectangular sector | Rectangular sector, no offset from the sensor vertical  |  |
| Front Angle view   | 45°   |  |
| Side Angle view    | 32°   |  |
| Covered Area size  | 700mm x 470mm<br>[28 x 19 inches]                       |  |

|                    |  |  |
|--------------------|--|--|
| Rectangular shape  | FORM II  |  |
| Typical use case   | Tightly spaced seats, such as for conference room, and small tables where people are sitting from both sides |  |
| Rectangular sector | Rectangular sector, offset 55mm [2 inches] backwards from the sensor vertical                                |  |
| Front Angle view   | 35°  |  |
| Side Angle view    | 19°  |  |
| Covered Area size  | 640mm x 170mm<br>[25 x 7 inches]   |  |

|                           |  |  |
|---------------------------|--|--|
| <b>Rectangular shape</b>  | <b>FORM III</b>  |  |
| <b>Typical use case</b>   | Ceiling mount or in cases where sensor is "spot detecting" straight in front of it |  |
| <b>Rectangular sector</b> | Rectangular slit, offset 140 mm [5.5 inches] forward from sensor vertical          |  |
| <b>Front Angle view</b>   | 52°  |  |
| <b>Side Angle view</b>    | 14°  |  |
| <b>Covered Area size</b>  | 700mm x 200mm<br>[28 x 8 inches]   |  |

### 6.1.2 Field of view limiters for Presence and Motion+

All the following information assume the distance of the sensor from the floor is 640mm [25 inches].

|                           |   |  |
|---------------------------|---|--|
| <b>Rectangular shape</b>  | <b>FORM I</b>   |  |
| <b>Typical use case</b>   | Normal work desks and wide standing desks with one seat |  |
| <b>Rectangular sector</b> | Rectangular sector, no offset from the sensor vertical  |  |
| <b>Front Angle view</b>   | 47°   |  |
| <b>Side Angle view</b>    | 25°   |  |
| <b>Covered Area size</b>  | 700mm x 470mm<br>[27.5 x 18.5 inches]                   |  |



## 7. Installation of Sensors

Sensors are installed using the Yanzi installation tool. Make sure you get login credentials from Yanzi prior to installation and that the floorplan of the building has been added to the account.

### 7.1 Start Yanzi Installation tool

- 1) Using a Chrome browser, go to the link specified by Yanzi, typically something like <https://cirrus.yanzi.se>
- 2) Sign in using the credentials provided by Yanzi, email and password
- 3) When logged in, click “Locations” in the left column
- 4) In the list of locations, click on the location where installation should take place.
- 5) Click “Installer” to the right of the top bar
- 6) The floor plan will now open and you are ready to install sensors

The Yanzi installation tool is a cloud based tool so make sure Internet connection is available throughout the building.

### 7.2 Installation Procedure

- 1) Select floor in the bottom left corner of the map
- 2) Zoom into area on the floorplan where the sensor should be installed
- 3) Click on the exact location where the sensor will be installed
- 4) Add the following properties in the “Add new device” list
  - DID.** Scan the sensor QR code using the hand scanner.  
*Example: EUI64-0090DAFFFE00526A*
  - Optional: **Logical Name**  
*Example: Entrance motion detector*
  - Optional: **Room name**  
*Example: Oval office*
- 5) Click “Connect” in bottom right corner
- 6) Turn on the sensor
  - For battery powered sensors: Push power switch to ON (see section 5.5) or insert batteries.
  - For USB powered sensors: Insert the USB cable and plug in the power adapter to a wall socket.
- 7) Verify the LED on the front panel is lit within 10 seconds. If the LED has not made any indication within 10 seconds, check batteries or external power.
- 8) Dry target surface with a cloth to remove dust, dirt, and grease
- 9) Place sensor by removing the non-stick film on the back of the sensors sleeve and place it into position by pressing FIRMLY on the gray sleeve for 10 seconds (if adhesive tape is used)
- 10) Restart at point 3 for next sensor

When done, leave the Installer and go to the List view to verify that all your added sensors are connected.

Sensors are assigned a radio channel, encryption key, and configuration settings automatically and data should be available in the Cloud within a few minutes after installation.





Ensure that the door won't open directly under the cameras counting line.

## Installation and configuration

1. Mount the camera in the ceiling, having considered the requirements listed above. Make sure you connect the camera using an PoE switch as it gets power over Ethernet. *Please note that the footfall camera must be connected to the same network as the Yanzi Gateway*
2. Log in to the footfall camera by typing in its assigned IP-address in your internet browser of choice. The default login credentials - username: *admin* and password: *admin*
3. When logged in, click Wizard and follow the steps to configure the footfall camera.
4. Once the footfall camera is mounted and configured you need to connect the footfall camera to you Yanzi Location, to do this:
  - a. Go to the Cirrus link specified by Yanzi, typically something like <https://cirrus.yanzi.se>
  - b. Sign in using the credentials provided by Yanzi, email and password
  - c. In the list of Locations, select the Location where you mounted the footfall camera and click **Installer**
  - d. In the dropdown menu called 'Discovered Things' you will now be able to see your recently installed footfall camera. Click **Quick Connect**
  - e. Your Yanzi Footfall Camera is now connected and will start pushing data to the cloud









5. Insert the new micro-SIM card, take note of the SIM card orientation shown below



Yanzi IoT Gateway

Yanzi IoT Gateway Plus

6. Re-assemble the gateway

Please note that you will have to update the gateways SIM card configuration after changing operator. See section 9.4.

## 9.4 IoT Gateway 3G SIM card configuration

Put files in a folder named yanzi-upgrades on a USB stick and add the three following files as shown in the table below. Please note that the three files must not include a file extension.

| Filename | Description        | File content      | Comment  |
|----------|--------------------|-------------------|--|
| wwan     | Wireless WAN (3G)  | on/off            | When the wwan file contains "on" 3G will be enabled and when containing "off" the gateway will be configured for Ethernet use. |
| apn      | APN config         | 3g.telia.com      | Telia APN show as an example, ask your SIM card provider for the correct APN.  |
| apn.auth | APN Authentication | username:password | Note that not all operators require an APN authentication, if yours doesn't, don't include this file.                          |

Once you have put these files on a USB stick, follow the steps below:

1. **Ensure gateway is off**
2. **Insert the USB stick**
3. **Turn the gateway ON** (USB still inserted, let the gateway run for at least 15 mins)
4. **Turn the gateway OFF** (USB still inserted, make sure gateway is switched off at least 10 seconds)
5. **Turn the gateway ON** (USB still inserted, let the gateway run until the lower LED turns solid or blinking green)
6. **Remove the USB stick**
7. **Reboot the gateway:** Verify the lower LED still turns green (or blinking green)

## 10. Working with Sensors

### 10.1 LED Behavior

All sensors have a dual color LED that can indicate green or orange. The typical LED behaviors are shown in the table below.

| Sensor LED State             | Description  | Note   |
|------------------------------|--|--|
| Off                          | Power is off or sensor is in sleep                   | All sensors turn the LED off a short while after power has been applied to avoid light pollution. A short press on the button turns the LED on to display status if sensor has power (see section 5.5) |
| Short orange or green blink  | Power has just been applied and sensor is booting up | Wait a few seconds for actual status   |
| Blinking green (slow)        | Sensor is ready to be peered with a location         | Use the installation tool to peer the sensor with a Gateway (Location)   |
| Steady green                 | Sensor is peered with a location and working         |  |
| Blinking green (fast)        | Sensor is about to be reset                          | See details on resetting a device in section below   |
| Blinking orange/green (fast) | Sensor has been reset to factory default             | See details on resetting a device in section below   |

### 10.2 Resetting a device

If a device should be removed from an installation, please hold the status button (see section 5.5) on the sensor pressed for about 20 seconds. After 15 seconds the LED will start flashing green quickly to warn that if you keep the button pressed, it will reset. After another 5 seconds it will start flashing orange/green which means it will now reset when the button is released. Release the button and the sensor will reboot as factory default.





## 11.1 Battery Consumption

Yanzi sensors are very power efficient. Most battery driven Yanzi sensors consume less than 5uA during sleep which is class leading. Sensors wake up periodically to communicate with the Gateway with a configurable frequency. Sensors detecting motion communicates with the Gateway immediately upon motion for fast response times and goes to sleep for a certain time following a motion, called black-out period, to save battery. Things that affect the battery life is shown below. Battery life time cannot be guaranteed if used outside of below recommendation. Note that default sensor settings may differ from below requirements.

| Item                   | Required for 5-year battery life<br><i>Yanzi Presence and Yanzi Climate</i>      |
|------------------------|--|
| <i>Battery</i>         |  |
| Type of battery        | AA, 1.5V   |
| Battery chemistry      | Alkaline or LiFe   |
| Number of batteries    | 4 (Inserted/replaced according to Yanzi battery requirements)                    |
| Battery capacity       | Minimum 2,700mAh   |
| <i>Usage</i>           |  |
| Radio usage            | Minimum 70% of 2.4GHz radio channel<br>Maximum background noise floor of -100dBm |
| Radio coverage         | Minimum RSSI of -80dBm   |
| Communication interval | 2 minutes or more with 50% blackout period                                       |
| Environment            | 16-25°C<br>20%-80% relative humidity   |
| PIR usage              | Maximum 8h per day   |
| Peering process        | Peered within 4 hours  |
| Gateway availability   | >99%   |

## 11.2 Note on Lithium Batteries

There are several types of Lithium batteries on the market in the standard size called AA. First, care must be taken to make sure the voltage is correct according to the datasheet; 1.5V, 3.0V, or 3.6V.

Yanzi has identified that several suppliers of 1.5V Lithium batteries of type LiFeS<sub>2</sub> often produce a voltage higher than 1.8V. Voltages above 1.8V may harm products targeted for 1.5V batteries so please verify that the battery you use follows the recommendations in the product datasheet.

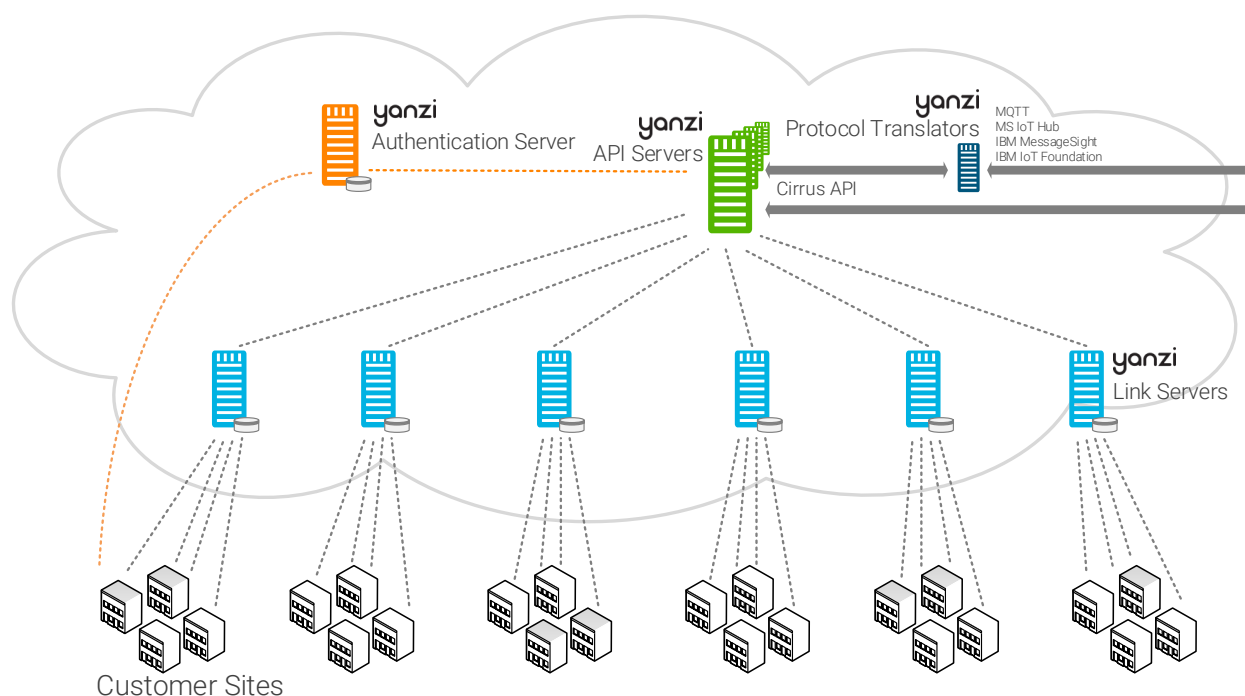
## 12. Troubleshooting

| Behavior              | Solution  | Note  |
|-----------------------|---|---|
| Gateway won't connect | <p><b><u>Ethernet-based gateways</u></b></p> <p>Yanzi IoT Gateway:</p> <ol style="list-style-type: none"> <li>1. Ensure Ethernet cable is plugged in</li> <li>2. Verify gateway is receiving power and is turned on</li> </ol> <p>Yanzi IoT Gateway Plus:</p> <ol style="list-style-type: none"> <li>1. Ensure Ethernet cable is plugged in to the right-hand port</li> <li>2. Verify gateway is receiving power and is turned on. If using PoE, double-check your switch is providing power over Ethernet.</li> </ol> <p>Yanzi IoT Gateway Rack:</p> <ol style="list-style-type: none"> <li>1. Ensure Ethernet cable is plugged into the right-hand port (the one next to the VGA port)</li> <li>2. Verify the gateway is receiving power and is turned on</li> </ol> <p><b><u>3G/4G-based gateways</u></b></p> <p>Yanzi IoT Gateway 3G:</p> <ol style="list-style-type: none"> <li>1. Verify gateway is receiving power and is turned on</li> <li>2. Ensure sim card is inserted</li> </ol> <p>Yanzi IoT Gateway Plus 3G:</p> <ol style="list-style-type: none"> <li>1. Verify gateway is receiving power and is turned on</li> <li>2. Ensure sim card is inserted</li> </ol> |   |
| Sensor won't connect  | <p><b><u>Battery powered sensors</u></b></p> <ol style="list-style-type: none"> <li>1. Ensure batteries are inserted</li> <li>2. Some battery powered sensors have a power switch, verify this is set to ON</li> </ol> <p><b><u>USB powered sensors</u></b></p> <ol style="list-style-type: none"> <li>1. Ensure cable is plugged in</li> <li>2. Verify the power adapter is plugged in to a working outlet</li> </ol>  | It is always possible to check any sensors status by pushing the button. The LED will then indicate the current state of the sensor, see section 10.1 for LED behavior. |



## 13.2 High Security Cloud Model

All access to IoT data is authenticated in the API. All links are authenticated with client and server certificates and all communication is made using SSL encryption.



### Data model

- **Authentication server** (Orange) signs all certificates as well as redirects the Gateways to the correct Link server
- **Link servers** (Light Blue) manage Gateways and pass data to Microsoft IoT Hub via API Server.
- **API servers** (Green) provides a secure interface to analytics partner and acts as an aggregator for multiple link servers.
- **Prototocl Translators** (Dark Blue) translates Yanzi Cirrus API to other APIs such as MQTT.
- Local **Gateway** (Gray) stores all sensor data temporarily to support autonomous operation when Internet connection is down

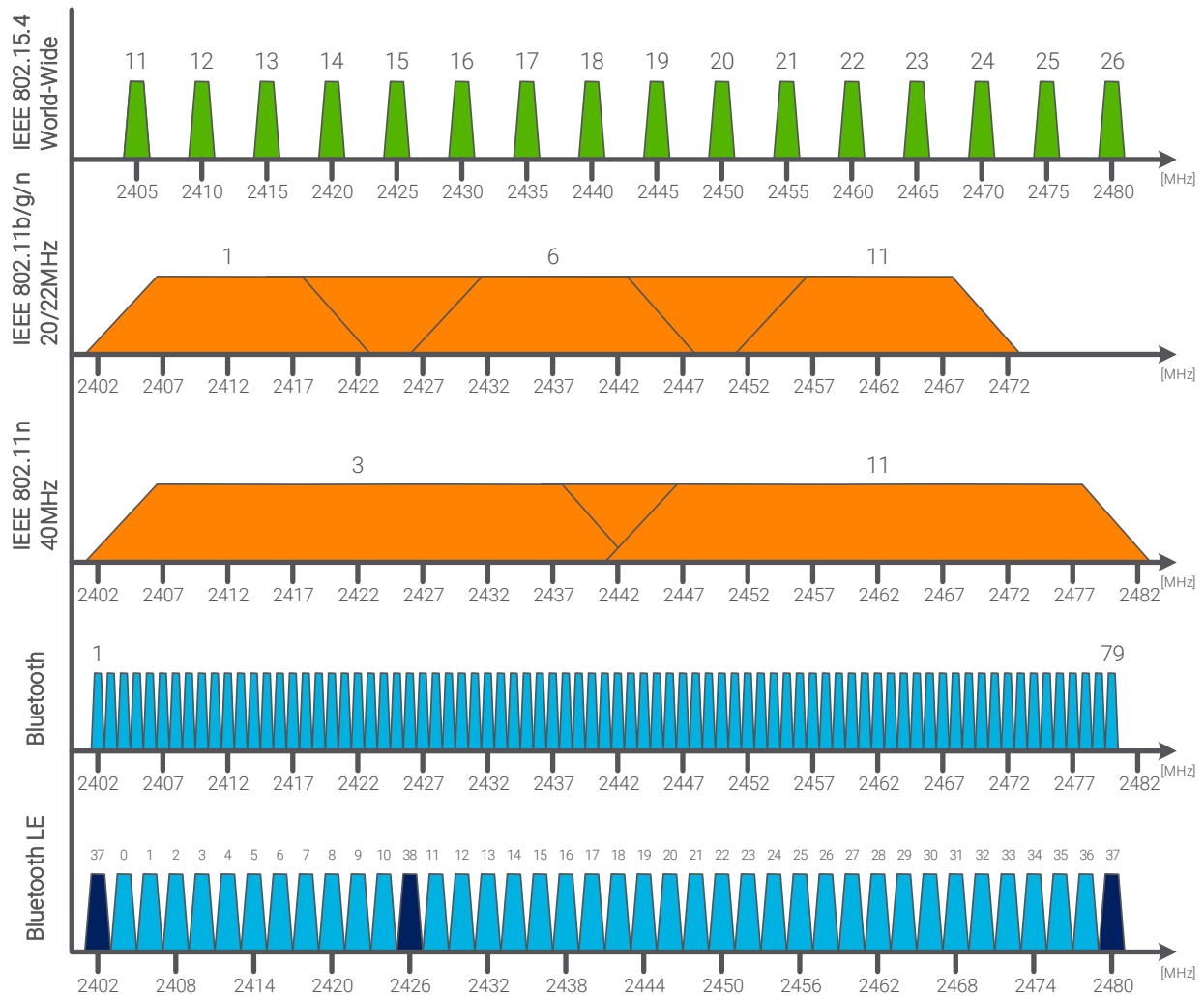
### Two Cloud Server models:

- **Shared:** Servers are shared between customers
- **Dedicated:** All data is kept within a specific cloud provider

## 14. IEEE 802.15.4 Overview

IEEE 802.15.4<sup>1</sup> is a low power wireless network optimized for battery driven devices. On the world-wide approved 2.4GHz spectrum, it supports 16 channels with 250kbps per channel where each channel has a bandwidth of 2MHz.

A comparison with WiFi, IEEE 802.11b/g/n, Bluetooth Classic, and Bluetooth Low Energy can be seen on the below picture. IEEE 802.11b uses 11 channels in US and 13 channels in Europe with a bandwidth of 22MHz per channel.



Yanzi Gateways automatically select channels for IEEE 802.15.4 that sensors attach to.

<sup>1</sup> Note that this is an overview of wireless protocols only and does not reflect which wireless communication protocols are included in each product and in all countries. See each product brief for details.









## 18. General Product Information

The information below relates to the following products

|                          |            |
|--------------------------|------------|
| - Yanzi IoT Gateway      | DR2-8830   |
| - Yanzi IoT Gateway Plus | DR2-8910   |
| - Yanzi IoT Gateway 2    | DR3-314x   |
| - Yanzi Climate          | SWTH1-1230 |
| - Yanzi Motion           | MDW1-0201  |
| - Yanzi Presence         | MDW3-0180  |
| - Yanzi Presence Mini    | MDH3-1620  |
| - Yanzi Motion+          | MDW3-0231  |
| - Yanzi Comfort          | SWAQ3-0372 |
| - Yanzi IoT Mesh         | IoT-U42    |

These devices comply with part 15 of the FCC Rules / Industry Canada license-exempt RSS standard(s). 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

For Yanzi IoT Mesh:

The device complies with RF specifications when used at a distance of 5mm from your body.

Keep the device away from your body to meet the distance requirement.

**Les antennes installées doivent être situées de façon à ce que la population ne puisse y être exposée à une distance de moins de 5mm**

For the left products in this user manual:

**A separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.**

**Les antennes installées doivent être situées de façon à ce que la population ne puisse y être exposée à une distance de moins de 20 cm.**

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The information below relates to the following products

- Yanzi IoT Gateway Plus DR2-8910
- Yanzi IoT Gateway 2 DR3-314x
- Yanzi IoT Mesh IoT-U42

For your own safety, and in terms of the RF exposure requirements of the FCC, always observe these precautions:

- Do not co-locate the antenna with any other transmitting device.


## 19. Regulatory Information

This section shows the regulatory information for each product and country that is not available on the product label.

**THIS SECTION WILL BE UPDATED WHEN CERTIFICATION IS DONE**

### 19.1 Yanzi Comfort

The below information relates to Yanzi Comfort, SWAQ3-0372.

| Country   | Standard | Regulatory Information  |
|-----------|----------|---|
| China     | SRRC     | CMIIT ID: xxxxxxxxxx  |
| Japan     | MIC      | XXX-ABCDEF  |
| Mexico    | IFETEL   | IFT: xxxxxxxxxx   |
| Hong Kong |          | <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><b>C</b>ertified for use in Hong Kong<br/>經驗證可在香港使用</p> <p>Certificate No. 證書號碼<br/>HK0021700140</p> <hr/>  <p>通訊事務管理局<br/>COMMUNICATIONS<br/>AUTHORITY</p> </div> |
| Singapore | iDA      | <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>Complies with<br/>IMDA Standards<br/>DBxxxxxx</p> </div>   |


## 19.2 Yanzi IoT Gateway 2

The below information relates to Yanzi IoT Gateway 2, DR3-314x.

| Country   | Standard | Regulatory Information   |
|-----------|----------|--|
| China     | SRRC     | CMIIT ID: xxxxxxxxxxxx   |
| Japan     | MIC      | XXX-ABCDEF   |
| Mexico    | IFETEL   | IFT: xxxxxxxxxxxx  |
| Hong Kong |          |  |
| Singapore | iDA      | <div style="border: 1px solid black; padding: 5px; display: inline-block;">Complies with<br/>IMDA Standards<br/>DBxxxxxx</div> |


### 19.3 Yanzi IoT Mesh

The below information relates to Yanzi IoT Mesh, IoT-U42.

| Country   | Standard | Regulatory Information  |
|-----------|----------|---|
| China     | SRRC     | CMIIT ID: xxxxxxxxxxxx  |
| Japan     | MIC      | XXX-ABCDEF  |
| Mexico    | IFETEL   | IFT: xxxxxxxxxxxx   |
| Hong Kong |          | <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><b>C</b>ertified for use in Hong Kong<br/>                     經驗證可在香港使用<br/>                     Certificate No. 證書號碼<br/>                     HK0021800012</p>  <p>通訊事務管理局<br/>                     COMMUNICATIONS<br/>                     AUTHORITY</p> </div> |
| Singapore | iDA      | <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>Complies with<br/>                     IMDA Standards<br/>                     DBxxxxxx</p> </div>   |


### 19.4 Yanzi Motion+

The below information relates to Yanzi Motion+, MDW3-0231.

| Country   | Standard | Regulatory Information  |
|-----------|----------|---|
| China     | SRRC     | CMIIT ID: xxxxxxxxxxxx  |
| Japan     | MIC      | XXX-ABCDEF  |
| Mexico    | IFETEL   | IFT: xxxxxxxxxxxx   |
| Hong Kong |          | <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><b>C</b>ertified for use in Hong Kong<br/>                     經驗證可在香港使用<br/>                     Certificate No. 證書號碼<br/>                     HK0021700139</p>  <p>通訊事務管理局<br/>                     COMMUNICATIONS<br/>                     AUTHORITY</p> </div> |
| Singapore | iDA      | <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>Complies with<br/>                     IMDA Standards<br/>                     DBxxxxxx</p> </div>   |

## 19.5 Yanzi Presence Mini

The below information relates to Yanzi Presence Mini, MDH3-1620.

| Country   | Standard | Regulatory Information   |
|-----------|----------|--|
| China     | SRRC     | CMIIT ID: xxxxxxxxxxxx   |
| Japan     | MIC      | XXX-ABCDEF   |
| Mexico    | IFETEL   | IFT: xxxxxxxxxxxx  |
| Hong Kong |          | <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><b>C</b>ertified for use in Hong Kong<br/>                     經驗證可在香港使用<br/>                     Certificate No. 證書號碼<br/>                     HK002180011</p>  <p>通訊事務管理局<br/>                     COMMUNICATIONS<br/>                     AUTHORITY</p> </div> |
| Singapore | iDA      | <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>Complies with<br/>                     IMDA Standards<br/>                     DBxxxxxx</p> </div>  |