



Automated occupancy management AIBOX

With potential restrictions following COVID-19 pandemic, it is increasingly important to manage number of people within closed spaces. This could be stores, offices, malls.

Counting customers and staff manually is laborious and complex, needing automation.

There may be a review of current security policies industry wide.

Automated occupancy management

AIBOX

0 0 5 0 9 1



AIBOX - automated counting of people and control of entry/exit e.g. door, traffic lights, etc.

- Count people in and out (consolidated counting on multiple entrances simultaneously)
- On exceeding set threshold - automatic actions could be programmed (e.g. lock door, turns ON red light, trigger displays or [STOP] sign, etc.
- When total occupancy count goes below threshold – automatically opens the door, turns ON Green light, etc.
- Threshold is configurable. Counters can be reset manually or automatically and via schedules.



AIBOX count and control

How does it work ?

Use existing CCTV infrastructure to count people - minimise investment

- If there are existing cameras at entrance/exit, they `could` be reused for people counting.
- If there is no working CCTV system, CBC can provide a complete counting infrastructure including CCTV.



AIBOX count and control

How does it work ?

Counting algorithms can work in various applications

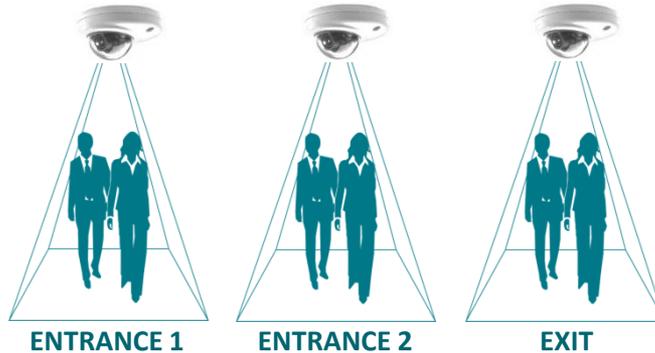
Single Entrance & Exit

The system will increase count for people walking in and decrease count for people walking out automatically, intelligently recognising direction of movement.



Multi Entrance & Exit

This is an ideal scenario for the centralised smart nature of our solution. It automatically provides holistic aggregate occupancy based on traffic calculations from all entry/exits.



AIBOX count and control

How does it work ?



Precise control of area occupancy rules

Depending on size of the area (e.g. store size) to be controlled, the maximum number of customers allowed can be programmed.

AIBOX accurately tracks the entry/exits, accounting for each individual.

Once the total count exceeds set threshold, the system automatically triggers appropriate actions.

Examples of actions once threshold is exceeded:

- Turn on the „traffic light”, e.g. red light with [STOP] sign
- Sending command to AC system (e.g. close the door)
- Executing voice message (e.g. please wait)
- Control of LED panel and display appropriate message



AIBOX count and control

How does it work ?



Decide when the AIBOX should allow the next set of people in

Maximum threshold (limit) decides when the system should react and stop further people coming into the controlled area.

Minimum threshold is the parameter that determines when system reopens entry into the area. AIBOX will turn on green light or open the door when number of people in the area (store) will drop below the minimum threshold.

Maximum and Minimum threshold:

Example: In a store of 1000m², the max occupancy is 60 people.

So, the maximum threshold is set to **60**. And the Minimum threshold could be set at **58**. The system would allow reentry only when store occupancy drops below **58**.

In this case, it allows entry for groups of 3 (e.g. family).



AIBOX count and control

How does it work ?

Reset daily counters before opening the store or at set times

A variety of situations through daily operations may cause count divergence e.g. cleaning personnel, Staff stocking shelves, etc.

This could therefore require a counter reset.



MANUAL RESET

By pressing dedicated button/switch connected to AIBOX. It could be any kind of switch connected by wire to AIBOX. Radio transmission based wireless switches could also be used.



AUTOMATIC RESET

Based upon programmed settings, the system can reset the value of counter automatically, every day at specific defined time.



AIBOX count and control

System components - option with monitor



The main component

AIBOX

People counting and controlling other devices or systems, depending on counted number of people.

ZN-AIBOX04 – counting on 4 cameras

ZN-AIBOX08 – counting on 8 cameras

ZN-AIBOX16 – counting on 16 cameras



Ethernet



HDMI

Optional components

DISPLAY MODULE

Receiving data from AIBOX and converting to text message displayed on screen and voice message generated through loudspeaker.

EN-RP4-DISP – display module

MONITOR

Display text on screen and playback voice message through loudspeaker.

DS320FHD-ECO – 32" screen



AIBOX count and control

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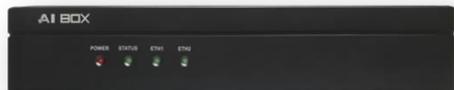
ZN-AIBOX16 – counting on 16 cameras

Optional components

LED TEXT DISPLAY

Receive data from AIBOX through ethernet network and display appropriate text in RGB colours.

RGB10X2 – LED display, size 320x640mm

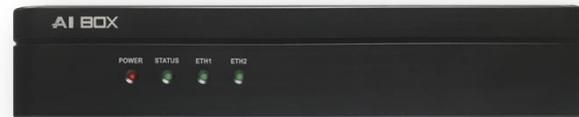


Ethernet



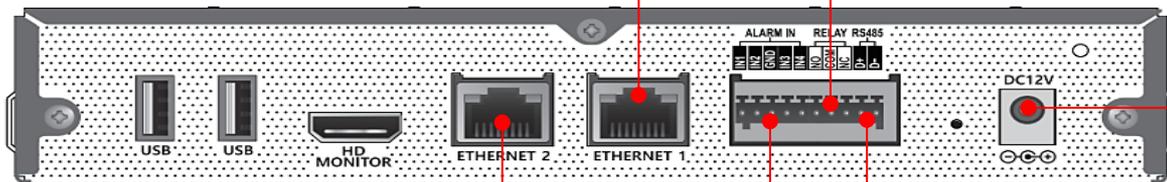
AIBOX – intelligent counting system

Interfaces



ETHERNET 2 | IP Cameras or DVR/NVR

RELAY NO/NC | control of RED/GREEN lighting, lock the door, etc.



12VDC | power supply attached

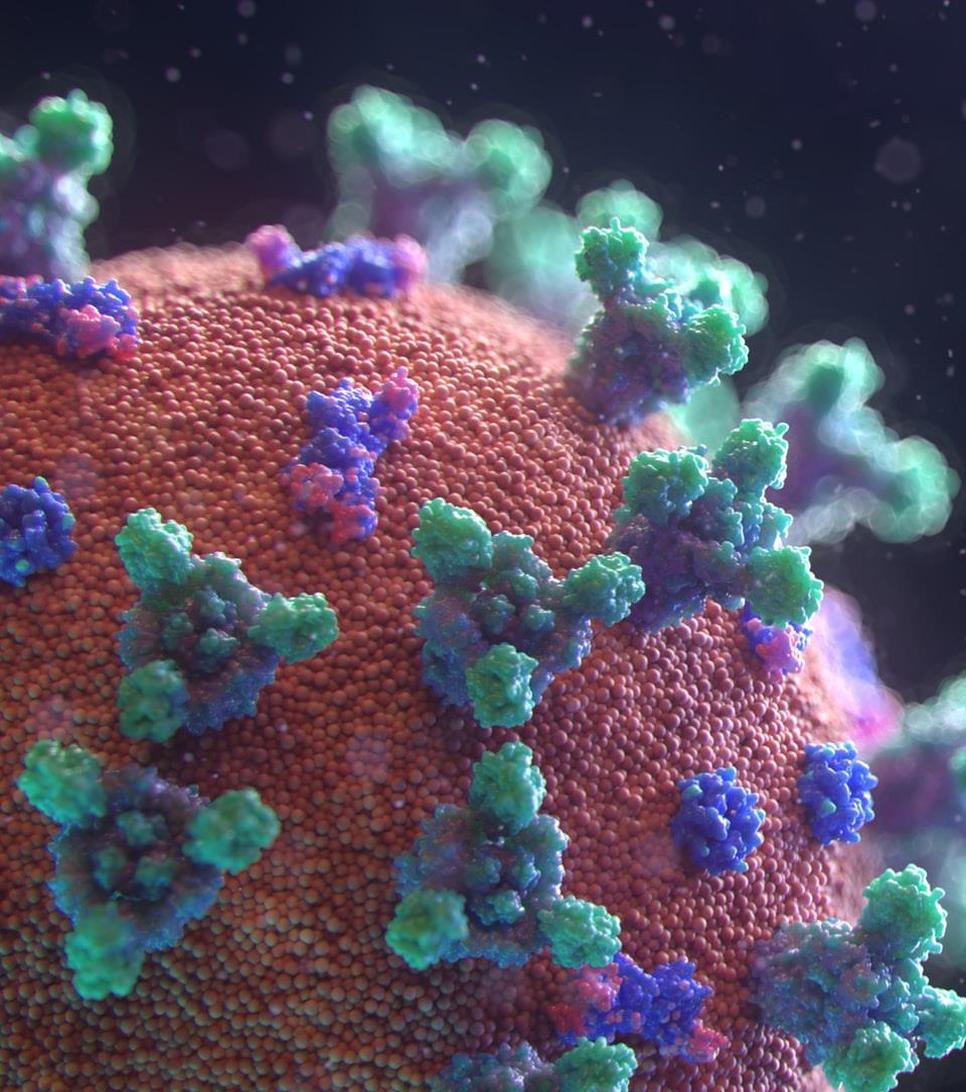
ETHERNET 1

Display Module, LED Text Display
Communication with other systems

RS485 | sending commands to other systems, e.g. door control

4 x ALARM IN | e.g. RESET button, wireless system with remote reset button





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use technology to minimise the
risk of virus spread**

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