

## Real Time People Counting and Occupancy solution for Bosch Security Cameras

### Introduction

dc analytics offer a cloud-based solution for real time people counting. It utilizes advanced Bosch security cameras and Bosch Security Cloud. Customer entries and exits are counted on multiple cameras for access to the same area. The combined values are displayed real time on status web-pages that are updated within seconds.

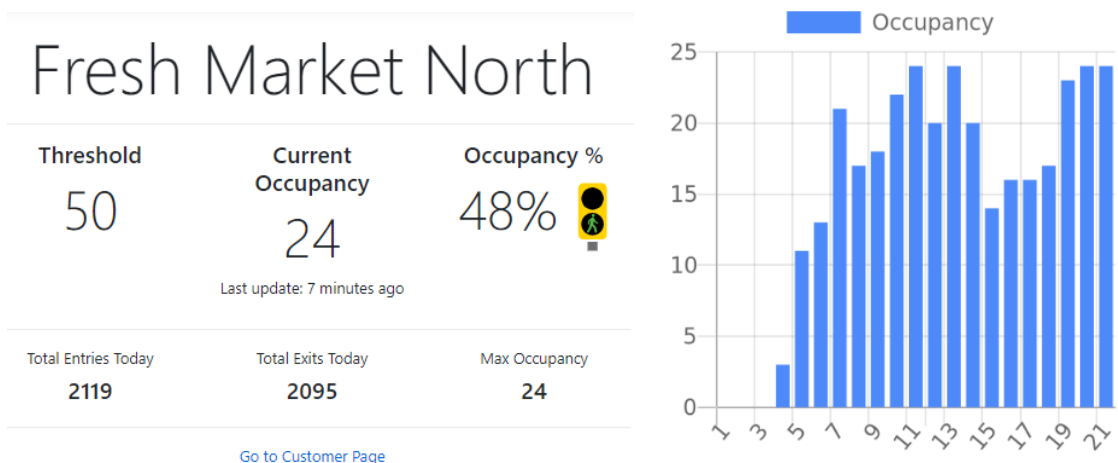
### How does it work?

Cameras must be installed with specialized configuration and script commands that links cameras to subscriptions on Bosch Cloud and dc analytics cloud. On the dc analytics cloud the cameras are named and associated to groups (up to 12 cameras). For each group a configurable occupancy threshold can be configured and the group has an associated “welcome screen”. If the occupancy is below the threshold a green welcome screen is displayed. If above the threshold, then the welcome screen is red displaying a wait message. Messages can be customized. The counting is restarted every day at midnight.



On the back office dashboard the shop manager can keep track of current occupancy level, current welcome screen and see statistics of occupancy for the day. Besides for the real time people counting the solutions provide traditional aggregated historic people counting statistics (through Bosch cloud).

No counting camera is 100% accurate in a real world scenario. Therefore, the back office dashboard allows manual correction of occupancy. The manager can either reset the occupancy to zero or add or subtract a correction based on actual observations.



## How much does it cost?

The solution requires a Bosch CBS-CTRRPT-CAM Count Report license for each 6 cameras and a dc analytics DCA-RT-BOSCH license for each camera. The licenses are invoiced annually. The solution requires monitors/computers/tablets in order to show the information pages in the back office and at shop entrance.

## Requirements

All cameras should support Intelligent Video Analytics (IVA). Cameras supporting Essential Video Analytics (EVA) will only work in very simple scenarios and are not recommended. Cameras must be associated with a dedicated Bosch Cloud Count License. Cameras must be 100% dedicated for counting and mounted with “birds-eye” view. The better camera for the situation (angle/height/crowd density) the more accurate results. The solution is cloud based and requires a stable Internet connection with outgoing HTTPS/SSL allowed (no port forwarding required).

## Security and Stability

The solutions do not need other local hardware than Bosch Security cameras and a PC or tablet to show the customer welcome page and back office dashboard. The dc analytics provide addition to functionality by Bosch cameras and Bosch Security Cloud. The functionality is built based on a serverless architecture provided by Microsoft Azure Cloud.

## Work required set up and deploy the solution

Bosch cameras have sophisticated video content analytics that require experience to configure correctly and achieve satisfactory counting accuracy. When the camera counting is configured and added to Bosch cloud then it can be configured in dc administration panel. The administration panel provides customized command lines that should be added to the VCA script and the Alarm Task script in the camera.

## Part numbers

<i>CBS-CTRRPT-CAM</i>	Bosch IP Camera Counter Report pr. 6 cameras pr. year. Supplied by Bosch Cloud Service.
<i>DCA-RT-BOSCH</i>	dc analytics real time counting license for Bosch pr. camera pr. year. Supplied by dc analytics.

## Q&A:

**Q:** Can I purchase the entire solution from Bosch and get support from Bosch?

**A:** No, the real time counting licenses have to be purchased by a Bosch reseller from dc analytics and support is provided by dc analytics through the Bosch reseller.

**Q:** Which languages are available for dc analytics real time counting?

**A:** The main language is English but the welcome screen messages can be configured individually in any language in the back-office dashboard.

**Q:** Can I use exiting Bosch cameras already installed to do real time counting?

**A:** No, the cameras have to be installed at the optimum location for counting. That will normally be “birds-eye” looking straight down.

**Q:** What is the minimum installation height for the counting cameras?

**A:** It is important to follow Bosch recommendations regarding camera selection and installation. Our experience is that a minimum height of 2,5m is recommended and for installation heights below 3m then FLEXIDOME IP panoramic 7000 12MP 360 IVA is recommended.