

Intelligent Insights 1.0



Intelligent Insights is a user-friendly, web-based application to visualize the Video Analytics metadata from Bosch IP cameras and to provide a better situational awareness. The metadata includes object and people counting, crowd detection, area occupancy, and object geolocation information. The data is presented in pictograms or graphs, showing the data from a single camera or combining the data from multiple cameras.

Intelligent Insights helps the security operator to understand how many objects are actually moving in a certain area and in what direction. The solution intuitively visualizes changing crowd data in real time, thus enabling the operator to spot potential overcrowding in advance, and take effective countermeasures before it becomes dangerous. All data is stored in an internal database and can be analyzed in a report function.

System overview

Bosch cameras have built-in video analytics to detect crowded scenes, to count objects or provide geolocation data of detected objects. The data from a single camera is often insufficient, and only the data from multiple cameras collated synchronously can provide usable insights.

Intelligent Insights collects information about crowd numbers, density and geolocation from Essential or Intelligent Video Analytics and visualizes the data in widgets. By combining the information from multiple cameras, Intelligent Insights displays the crowd's density, the occupancy level of the area and the movement of defined objects.



- ▶ Crowd level visualization
- ▶ Occupancy tracker
- ▶ Object flow visualization
- ▶ Object tracking

It is possible to install the software package on Windows 10 or Windows Server 2016 Operating systems. The solution can be used stand alone or integrated in a BVMS system. The system uses standard web browsers to configure and display the widgets. The widgets can be grouped in dashboards or accessed individually. Single widgets can be integrated in 3rd party applications or webpages by URL.

The Bosch Video Analytics metadata is stored for maximum 31 days. The metadata can be reviewed and exported in CSV format in the report function of the system.

Functions

Object and people counting

Object and people counting shows the counted objects or people in a predefined time period on a certain point or the sum of multiple points.

The object counting widget visualizes the counted objects in the selected time period. The visualization can be customized. Cars, trucks, bicycles, persons or an individual symbol can be used for the visualization depending on the counted objects.

The people counting widget visualizes two counters in a single widget, one for incoming and one for outgoing persons. With the people counting widget the rate of people passing through an entrance can be visualized. It shows how many people have entered or left the building through an entrance.

Object and people counting can visualize real-time values in a column graphic or a developing trend in a bar graph. Selectable time periods are 10, 30, 60 min, 12h or 24h. By defining thresholds normal, serious or critical levels can be distinguished by different colors.

Crowd detection

Crowd detection widgets visualize the crowd level of a single camera or multiple cameras. The crowd level can be visualized in live view to give operators the current crowd level of a certain area, or the crowd level can be visualized in a bar graph to illustrate the development of the crowd level over a period of time. Selectable time periods are 10, 30, 60 min, 12 h or 24 h. By defining thresholds normal, serious or critical levels can be distinguished by different colors.

Crowd detection by cameras can only be used indoors.

For details see the crowd detection white paper.

Occupancy counting

Occupancy counting widgets visualize the currently counted objects in a defined area of interest. You can customize the visualization. Cars, trucks, bicycles, persons or an individual symbol can be used for the visualization depending on the counted objects. With combining the occupancy data from multiple cameras, occupancy counting gives an overview of the objects that are currently in an area.

The occupancy counting can visualize real-time values in a column graphic or a developing trend in a bar graph. Selectable time periods are 10, 30, 60 min, 12h or 24h. By defining thresholds normal, serious or critical levels can be distinguished by different colors.

Area fill level

Area fill level widgets are based on counting data from a single camera or multiple cameras. The occupancy of an area is the population divided by a defined maximum population, and takes into account incoming and outgoing objects within a configurable period.

The area fill level can be visualized as real-time values in a column graphic, or as a developing trend in a line graph.

The column graphic visualizes the occupancy level live from a selected start time. The occupancy level is a percentage based on the current population and a predefined maximum population in a set area. In addition, the number of objects entering and leaving the area within a predefined period can be shown. By defining thresholds a normal, serious or critical level can be distinguished by different colors.

Object positions

The object positions widget displays the positions of the Bosch IP cameras and the positions of the objects detected and tracked by Essential or Intelligent Video Analytics on an overview map. The widget tracks the

location of objects without the need to look at single or multiple camera live streams. A typical application for the object tracking widget is the monitoring of a perimeter. The object tracking widget displays all objects moving around the perimeter, and classifies them as persons, cars, trucks or bikes.

Report functionality

Collected counter and crowd density data is stored for maximum 31 days in the internal databases. For a later analysis and export of the collected data, the data can be accessed in a report function. Individual start and end times, granularities and visualization formats can be selected to display the recorded data. The reporting function gives access to the collected data for a better understanding of crowd situation and the resulting risks. With the reporting function implemented counter measurements to reduce crowded situations can be measured and compared in order to streamline processes and improve security and efficiency.

Technical specifications

Installation notes

The solution is based on latest micro-service architecture and latest technology. The software will be provided as an installation package that can be installed on Windows 10 or Windows Server 2016 operating system.

Hardware recommendations

Operating system	Windows 10 Enterprise 1909 Windows 10 Pro 1909 Windows 10 Pro for Workstation 1909 Windows Server 2016 1607
CPU	Intel Core i7 4770 3.4 GHz (up to 3.9 GHz) Support of CPU virtualization
RAM	Minimum 16 GB
Free disk space	Minimum 20 GB Note: Minimum 10 GB free disk space must be available after installation.
Network card	1000Base-T
Recommended web browser	Google Chrome

Device compatibility

Supported devices	Bosch Video IP cameras / encoders with Essential and Intelligent Video Analytics
Supported camera firmware version	7.60 or later

System limitation

Maximum number of IP cameras	64
Maximum number of data sources, for example counters or crowd fields	352
Maximum peak counter or crowd events for 64 cameras	4224 events / minute 70,4 events / second Note: maximum number of events for all cameras
Maximum number of objects in object position widget	50 Note: using the Google Chrome browser
Maximum number of data inputs per counting or crowd use case	30
Maximum number of cameras per object position use case	16
Maximum number of widgets per dashboard	16
Maximum number of parallel visible dashboards per client	1
Maximum number of parallel clients showing dashboards	5
File format for maps	Bmp, gif, jpg, png, tif

Ordering information**IGI-BASE Intelligent Insights Base**

Base license

Order number **IGI-BASE | F.01U.384.690****IGI-DASH License Dashboard expansion**

Expansion license for 1 dashboard. Order the exact number required.

Order number **IGI-DASH | F.01U.384.691****Software Options****IGI-MBASE SMA for IGI-Base 1yr.**One year of maintenance cover for the IGI-Base license.
Order number **IGI-MBASE | F.01U.384.693****IGI-MDASH SMA for IGI-Dash 1yr.**One year of maintenance cover for the IGI-Dash license.
Order number **IGI-MDASH | F.01U.386.390****Represented by:**

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