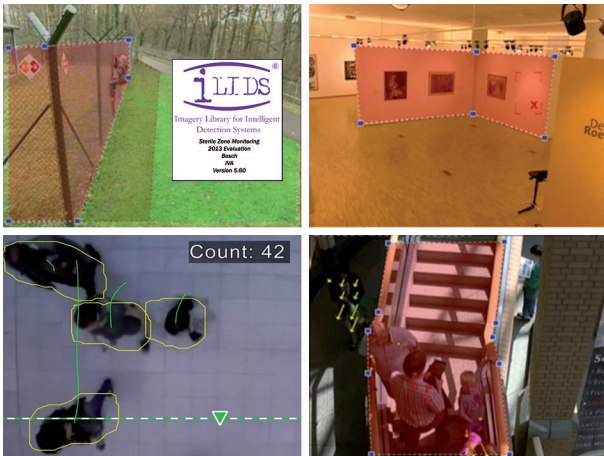# IVA 5.60 Intelligent Video Analysis

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BOSCH
Invented for life

▶ Embedded analytics eliminates dedicated PCs

▶ Adds metadata for forensic search to recordings

▶ Broad range of detecting tasks and object filters available

▶ i-LIDS approved primary detection system for operational alert use in sterile zone monitoring applications

▶ i-LIDS approved event-based recording system for sterile zone monitoring applications

The next generation of the Intelligent Video Analysis system by Bosch, IVA 5.60, is the guard-assistant system of choice when you need reliable video motion detection for indoor or outdoor use.

IVA 5.60 is state-of-the-art intelligent video analysis that reliably detects, tracks, and analyzes moving objects while suppressing unwanted alarms from spurious sources in the image.

Advanced tasks like multiple line crossing, route following, loitering, idle and removed object detection, counter flow detection, crowd density estimation, and overhead people counting are available. Object filter based on size, speed, direction, aspect ratio, and color can be defined. With IVA 5.60, the ability to take frontal face snapshots is now added as well.

IVA 5.60 is i-LIDS certified: "i-LIDS approved primary detection system for operational alert use in sterile zone monitoring applications" and "i-LIDS approved event-based recording system for sterile zone monitoring applications".

IVA 5.60 is a licensed option already fully prepared in many Bosch cameras and encoders.

Functions

Robust motion detection

IVA 5.60 is continuously developed in-house by the Bosch research group and brings the latest level of intelligence to IVA. It intelligently adapts to difficult conditions like changes in lighting or environment such as rain, snow, clouds, and leaves blowing in the wind. The built-in tamper detection generates alarms on camera hooding/masking, blinding, defocusing, and repositioning.

The following tasks are available:

- Detect objects within, entering, or leaving an area
- Detect multiple line crossing from single line up to three lines combined in a logical row
- Detect objects traversing a route
- Detect loitering in an area related to radius and time
- Detect objects which are idle for a predefined time span
- Detect removed objects
- Detect objects who's properties such as size, speed, direction, and aspect ratio change within a configured time span according to specification (for example something falling down)
- Count objects crossing a virtual line or entering a certain area
- Overhead people counting (Bird's eye view)
- Detect a certain crowd level in a predefined field

- Detect specified motion direction and speed even in crowds (for example a person moving the wrong way in a one-way gate)
- Detect objects that move contrary to the motion of all other objects in the scene, even in crowds
- Detect objects with heads
- Take snapshots of frontal faces (only available on DINION HD, FLEXIDOME HD, AUTODOME 7000)
- Combine tasks using scripts

Filters

To enhance robustness, IVA 5.60 can be configured to ignore specified image areas and small objects. Furthermore, object size, speed, two-way direction, aspect ratio, head detection, and color filters can be used to create specific detection rules for exactly the objects you are looking for.

Statistics on object properties are stored and can be displayed for fine tuning the object filters. Object properties can also be defined by selecting an appropriately similar object in the video.

Intelligence-at-the-edge concept

IVA 5.60 is available in Bosch cameras and encoders. This intelligence-at-the-edge concept allows a decision on which videos are captured based on video content analysis. By only selecting alarm video for streaming or recording, less bandwidth and storage is used.

Alarm conditions can be signaled by a relay output on the unit or an alarm connection, to stream video to a decoder or video management system. Alarms can also be transmitted to a video management system to start extended alarm scenarios.

As well as creating alarms, IVA 5.60 produces metadata that describes the content of the analyzed scene. This metadata is sent over the network—and may also be recorded—together with the video stream. It can be used for providing forensic search capabilities for recordings together with Bosch Video Management System (Bosch VMS) or Video Client. Forensic Search is very time efficient and can scan a huge recording database for events within seconds.

Intuitive graphical user interface

Setup is available via device web page as well as via Configuration Manager. A wizard-based graphical user interface guides through the configuration and provides all the necessary tools to set up IVA 5.60 and specify detection or counting tasks. Within this task manager, object properties like sensitive area, size, speed, perspective, and aspect ratio as well as the movement direction and object color can be set. These properties are visualized exemplarily as overlays for intuitive configuration and feedback.

The pick object functionality enables configuration to be carried out just by clicking an object of interest in the live scene. All specific information regarding size, speed, direction, aspect ratio, and color are automatically set for task configuration.

Up to eight independent tasks can be selected and combined in the scene to build sophisticated detection rules, each one individualized with its own parameters. This allows the detection of multiple object states in parallel, generating separate triggers that can be handled independently or in combination. The interface allows a flexible selection of detection areas through polygons with up to 16 corner points. Three half-automated calibration wizards are available for easy perspective correction and camera calibration making measurements more accurate for both metric and imperial systems.

When movement is detected, the object is outlined in yellow on the display and its motion is displayed as a green trajectory. If an object and its motion match the rule conditions defined for one of the detector tasks, an alarm is created and the object outlines are switched to red. Additionally, an idle object is marked with an [I] and a removed object with an [X].

Installation/configuration notes

The IVA 5.60 software functionality is a free-of-charge upgrade of IVA 4.50 and already part of all IVA 5.60 enabled products with the firmware release of 5.60 or later. It upgrades automatically from an already installed IVA 4.50 when installing the 5.60 firmware to the device. New IVA 5.60 customers only need to enable the 5.60 license to make it operational. The IVA 5.60 license enables all IVA 5.60 features.

IVA 5.60 is set up using either the device web page or the Configuration Manager program that is included with the product and available for download from the Bosch website.

Configuration Manager can be installed as often as required on any PC that will be used for configuration of IVA 5.60 and the products themselves.

Many Bosch cameras and encoders have one additional hardware accelerator chip (FPGA) to run IVA independently from encoding. Products with this hardware design allow usage of IVA 5.60. Taking frontal snapshots is only available on DINION HD, FLEXIDOME HD, and AUTODOME 7000 cameras.

Ordering information

IVA license camera
IVA 4.xx/5.xx VCA software license (e-license) for IP camera/dome
Order number **MVC-FIVA4-CAM**

IVA license single channel encoder
IVA 4.xx/5.xx VCA software license (e-license) for single channel encoder
Order number **MVC-FIVA4-ENC1**

IVA license dual channel encoder
IVA 4.xx/5.xx VCA software license (e-license) for dual channel encoder
Order number **MVC-FIVA4-ENC2**

IVA license quad channel encoder
IVA 4.xx/5.xx VCA software license (e-license) for quad channel encoder
Order number **MVC-FIVA4-ENC4**