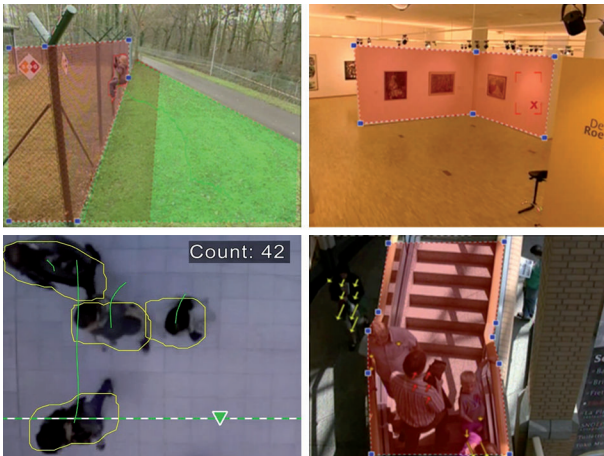


IVA 6.10 Intelligent Video Analysis

www.boschsecurity.com



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
- ▶ Automatic classification of person, bike, car, truck

The Intelligent Video Analysis system by Bosch, IVA 6.10, is the guard-assistant system of choice when you need reliable video motion detection for indoor or outdoor use.

IVA 6.10 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.

For calibrated cameras, IVA 6.10 automatically distinguishes between the object types upright person, car, bike, and truck.

The software also supports geolocation, that is it outputs tracked objects in relation to camera position for subsequent visualization on maps.

It allows you to record all of the object information and change the rules even after the fact for fully configurable forensic search.

IVA 6.10 is a licensed option already fully prepared in many Bosch cameras.

Functions

Robust motion detection

IVA 6.10 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
- Take snapshots of frontal faces
- Combine tasks using scripts

Filters

To enhance robustness, IVA 6.10 can be configured to ignore specified image areas and small objects.

For calibrated cameras, IVA 6.10 now automatically distinguishes between upright persons, bikes, cars, and trucks.

Furthermore, object size, speed, two-way direction, aspect ratio, and color filters can be used in any combination 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 6.10 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 6.10 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.

Forensic Search

The recorded metadata can be used for a full forensic search where the rules can be changed even after the fact within Bosch Video Management System (Bosch VMS) or Video Client.

New tasks can be defined and adapted for each search, and the recorded metadata is then scanned and evaluated accordingly.

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 6.10 and specify detection or counting tasks.

All configuration options are visualized exemplarily as overlays for feedback and can directly be manipulated for intuitive configuration.

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].

Configuration complexity on demand

In the minimal configuration, IVA 6.10 will alarm on any object in the scene. More complex setups are supported as well: Up to eight independent tasks can be set up in the GUI, and the alarm objects for each task can be restricted according to their properties. Camera calibration can be added for perspective correction and to obtain object properties in metric or imperial systems. Half-automated calibration wizards are available to support the calibration. A task script editor is available for fine tuning and combining predefined tasks, and additional eight tasks can be set up there.

Installation/configuration notes

IP cameras from Bosch are grouped by their common product platform (CPP) generation. IVA 6.10 is available on CPP4 and CPP6 based IP cameras, provided these cameras have an additional dedicated hardware unit (FPGA) for computing IVA.

Amongst the CPP4 based IP cameras with IVA are the DINION IP 7000, FLEXIDOME IP 7000, AUTODOME IP 7000, and MIC IP 7000 families with HD resolution.

The CPP6 based IP cameras with IVA include the DINION IP 8000 family with MP resolution as well as FLEXIDOME IP panoramic 7000 MP.

For best perimeter protection performance, use DINION IP starlight 8000 MP together with IVA 6.10.

The IVA 6.10 software functionality is a free-of-charge upgrade of IVA 5.60 and IVA 6.0 and already part of all IVA 6.10 enabled products with the firmware release of 6.10 or later. It upgrades automatically from an already installed IVA 5.60 or IVA 6.0 when installing the 6.10 firmware to the device.

The IVA 6.10 license enables all IVA 6.10 features. IVA 6.10 is set up using either the device web page or the Configuration Manager 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 6.10 and the products themselves.

Represented by:

Americas:

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, New York, 14450, USA
Phone: +1 800 289 0096
Fax: +1 585 223 9180
security.sales@us.bosch.com
www.boschsecurity.us

Europe, Middle East, Africa:

Bosch Security Systems B.V.
P.O. Box 80002
5617 BA Eindhoven, The Netherlands
Phone: + 31 40 2577 284
Fax: +31 40 2577 330
emea.securitysystems@bosch.com
www.boschsecurity.com

Asia-Pacific:

Robert Bosch (SEA) Pte Ltd, Security
Systems
11 Bishan Street 21
Singapore 573943
Phone: +65 6571 2808
Fax: +65 6571 2699
apr.securitysystems@bosch.com
www.boschsecurity.asia

China:

Bosch (Shanghai) Security Systems Ltd.
203 Building, No. 333 Fuquan Road
North IBP
Changning District, Shanghai
200335 China
Phone +86 21 22181111
Fax: +86 21 22182398
www.boschsecurity.com.cn

America Latina:

Robert Bosch Ltda Security Systems Division
Via Anhanguera, Km 98
CEP 13065-900
Campinas, Sao Paulo, Brazil
Phone: +55 19 2103 2860
Fax: +55 19 2103 2862
latam.boschsecurity@bosch.com
www.boschsecurity.com