MOTION+

Video Content Analysis

BOSCH

en   Software manual

Table of contents

1   Using the Help

The online Help provides you with information about this program directly on your screen. You can also find this information in the manual.

To find out more about how to do something in this program, access the Help.

1.1   Finding information

To find information in the Help:

1. On the **Help** menu, click **Online Help...**.
   The dialog box for the Help is displayed.
2. If the pane to the left is not visible, click the **Show** button.
3. In the Help window, do the following:
   Contents
   Display the table of contents for the Online Help. Click each book to display pages that link to topics, and click each page to display the corresponding topic in the right-hand pane.
   Index
   Search for specific words or phrases or select from a list of index keywords. Double-click the keyword to display the corresponding topic in the right-hand pane.
   Search
   Locate words or phrases within the content of your topics. Type the word or phrase in the text field, press ENTER, and select the topic you want from the list of topics.

Notice!

Texts of the user interface are marked **bold**.

▸   The arrow invites you to click on the underlined text or to click an item in the application.

Related Topics

▸   Click to display a topic with information on the application window you currently use.
    This topic provides information on the application window controls.

1.2   Printing the Help

While using the Online Help, you can print topics and information right from the browser window.

To print a Help topic:

1. Right-click in the right pane and select **Print**.
   The **Print** dialog box opens.
2. Click **Print**. The topic is printed to the specified printer.

2 Introduction

2.1 About this manual

This manual is intended for persons responsible for configuring and managing a CCTV system. This manual describes how to configure the MOTION+ program.

This document assumes that the reader is familiar with both the CCTV system and the other programs that are integrated into the system.

2.2 Conventions in this document

In this document, the following symbols and notations are used to draw attention to special situations:

Notice!

This symbol indicates special features and provides tips and information for easier, more convenient use of the software.

Terms that you can find in the program, such as menu options, commands or text in the user interface, are written in **bold**.

2.3 Additional documentation

After the program has been installed, this document is also available as online Help within the program.

Documentation for Bosch Security Systems products can be found as follows:

▸ Open any browser > enter www.boschsecurity.com > select your region and your country > start a search for your product > select the product in the search results to show the existing documents.

3   System Overview

3.1   MOTION+

MOTION+ can detect and analyze changes in the signal using image processing algorithms. Such changes can be due to motion in the camera's field of view.

Thereby MOTION+ detects changes in the image by comparing the current image with a some seconds older image.

The changes are aggregated in detection blocks. You can configure how many of these detection blocks must indicate changes over which amount of time before generating an alarm event.

3.2   Use cases

MOTION+ is available on all Bosch IP cameras and suitable for event based recording.

> **Notice!**
>
> For proper intrusion detection, use the Intelligent Video Analysis (IVA) program.

3.3   Limitations of MOTION+

In certain environments the use of this type of motion detection system may not always be advisable; this is because motion may not always be detected or too much motion may be detected owing to disturbing factors, for example, insects on the lens or snowstorms.

Motion may be falsely detected as follows:
–   Neon lights, flashing lights, night time lights, and reflected light (from a window or mirror, for example). The flickering of these lights can affect the detection.
–   A reflective background
–   Reflections on the ground
–   Water as background
–   Glass (glazed building frontages)
–   Cones of light moving in darkness
–   Inadequate lighting
–   Badly illuminated corners
–   Rapidly changing light conditions, for example, switching on/off a room illumination
–   Long hard shadows
–   Cameras mounted on masts swinging in the wind
–   Moving leaves/branches that present a persistent fixed motion

Examples:
–   Large areas of reflected light can also cause spurious motion detection. However, light reflections caused by falling raindrops, for example, are small enough to be ignored for statistical purposes and owing to the uniform nature of their motion.
–   Objects that always move uniformly (such as clouds) do not impair the detection of other objects and do not trigger false alarms.
–   A constant background is necessary in order to detect motion reliably.
–   If the image consists to a certain extent of nothing but moving objects, the motion of an individual object cannot be detected—for example, individuals in a large crowd.

4   Basics for MOTION+

This chapter describes basic information when using MOTION+.

4.1   Camera image

A camera image is that part of a area which is covered by the camera.

4.2   Field

Fields are polygons that cover a certain area, for example an entrance or the open space in front of a barrier. These fields are created by you. Objects that move within a field can generate an alarm event.
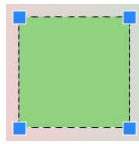
See also
– *Configuring the Detect any motion task, page 12*
– *Configuring the Motion in field task, page 12*

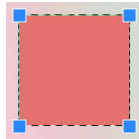### 4.2.1   Displaying fields in the camera image

Fields are displayed as follows:
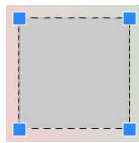
 A field that is not being used in any tasks is displayed in gray.

 A field that is being used in a task is displayed in green. Used fields can be edited but not deleted.

 A field for which there is currently an alarm event is displayed in red.

4.2.2   Creating and editing a field

You can create a new field. A field can also be edited at any time. This includes:
– Changing the field size
– Moving the field
– Inserting or deleting nodes

To create a new field:
▸ Click into the camera image to begin with the first corner of the field, then click again for each corner. Finish the field by double-clicking.

To change the size of the field:
1. Select the field.
2. Drag the line or the corners (nodes) of a field to the desired position in the camera image.

To move a field:
1. Select the field.
2. Drag the field as a whole to the desired position in the camera image.

To insert a corner (node):
1. Select the field.

2.   Right-click a line, then click **Insert Node**.
     or
     Double-click a line. A node is automatically inserted.
To delete a corner (node):
1.   Select the field.
2.   Right-click a node, then click **Delete Node**.

4.3   Tasks

A task describes events that trigger an alarm event when detected in the camera image (an object moving within a defined area, for example).
The result of a task is usually an alarm event. An alarm event can be analyzed in a CCTV system in many ways. In this way, a recording can be started, a door closed or an e-mail sent, for example.

See also
–   *Configuring tasks - general, page 12*

4.3.1   Creating and editing a task

To create a new task:
▸   Click **New**, select the task, then click**OK**.
To change the task name:
▸   Click the task, then click the name of the task and change it.
     Note: A task has an red background if an alarm event is currently being triggered by this task.
To edit a task:
▸   Select the task, click **Edit**, then change the settings.
To activate a task:
▸   In the **Alarm** column, click the check box to the right of the task name.
To delete a task:
▸   Select the task, then click **Delete**.

4.4   Sensitive Area

Sensitive area is that part of the camera image where motion can be detected.
In the default setting, the whole camera image is defined as sensitive area. Use VCA masks to exclude disturbing objects or areas that are irrelevant for alarm event generation.
Only objects moving outside VCA masks, in the sensitive area of the camera image, are detected as such and generate an alarm event. Objects moving inside VCA masks cannot generate an alarm event even if they are caught by the camera.
Examples where we recommend the use of VCA masks:
–   Railroad:
     Passing trains can trigger unwanted motion alarms.
–   Public streets:
     Passers-by moving across a public space should not be detected – in order to save unnecessary computing power and prevent unwanted false alarms.
–   Neighboring properties:
     Areas in which moving objects are not anticipated.
–   Sky:
     Birds or planes can trigger false alarms.
–   Trees, bushes or flags that move in the wind.

Notice!

Using MOTION+ for a forensic search in recordings, motion analysis is only possible in the area that was previously marked as the sensitive area in the recording.

See also

– *Configuring the sensitive area, page 13*

4.5 Metadata inspection – statistics

When you select the **Metadata Inspection** tab, some histograms with statistics on the relevant detected motions are displayed, either for a selected field or for the whole screen.

The statistics help you to monitor the properties over a longer period of time and to observe the changes. This allows you to refine the filter criteria.

The creation of the displayed statistics starts as soon as you open the MOTION+ window. The longer the window is left open, the more values will be entered into the statistics.

The statistics show the following histograms:

– **Cell Cluster Histogram [% of Whole Screen]**
– **Activity Histogram [% of area]**

See also

– *Metadata inspection, page 14*
– *Configuring the Motion in field task, page 12*

5 Starting MOTION+

You can start MOTION+ as follows:

– Use the Configuration Manager program.

 or

– Use the Web browser view of the device.

Notice!

You must move the camera to the required position first in each case. When using AUTODOME cameras, the individual presets must be specified before configuring MOTION+ for each preset. All of the settings you make relate to the selected camera position. This means that you must reconfigure MOTION+ for this camera whenever you change the camera's direction or position.

5.1 Starting using Configuration Manager

The Configuration Manager program can be installed on any Windows PC that communicates with the respective device over a network. The Configuration Manager program needs no license and no additional programs are required to analyse live images.

The system requirements and operation of Configuration Manager are described in the Configuration Manager manual.

To start MOTION+ using Configuration Manager:

1. Start Configuration Manager.
2. In the toolbar, click the **My Devices** tab, then select the device for which you wish to configure MOTION+ .

 In the View area, click the **VCA** tab.

 The VCA start page is displayed and the camera image appears to the right.
3. In the **Operating mode** list, select **Profile #1** or **Profile #2**.

 Note: To rename the profile, click 🖾.

 There are ten profiles available for AUTODOME cameras. Each profile can be used for one preset.
4. Only AUTODOME cameras: In the **Scene** list, select an entry.

 The camera positions for individual presets must be defined in advance. These presets may already be named individually.

 Only presets that are not yet linked to one of the profiles are available.
5. If necessary, select an **Aggregation time [s]** between 0 and 20 seconds.

 The aggregation time always starts when an alarm event occurs. It extends the alarm event by the value set. This prevents alarm events that occur in quick succession from triggering several alarms and successive events in a rapid sequence. No further alarm is triggered during the aggregation time. The post-alarm time set for alarm recordings only starts once the aggregation time has expired
6. In the **Analysis type** list select MOTION+.

 Note: If you change the analysis type, the motion detection and tamper detection parameters revert to the default settings.

 As soon as the analysis becomes active, meta data is generated and, depending on the configuration, additional information is overlaid on top of the camera image — an object bounding box for example.
7. Configure MOTION+ using the following tabs.

 – **Tasks**

- **Metadata Generation**
- **Metadata Inspection**

Notice!

If the MOTION+ configuration of this camera is in use, no other users can configure MOTION+ of this camera at the same time. Only the first user is able to do this. Other users receive a message that configuration is not possible.

See also

– *Configuring MOTION+, page 12*

5.2   Starting using Web browser

You can also configure MOTION+ using the Web browser view of the device.

To configure MOTION+ using the Web browser view:

1.   Open the Web browser view of the device. To do this, in the address bar of the Web browser enter http://<IP address of the device>.
2.   Click **Configuration** > **Alarm** > **VCA**.
     The VCA start page is displayed and the camera image appears to the right.
3.   In the **VCA configuration** list, select **Profile #1** or **Profile #2**.

     Note: If necessary, click 🖾 to rename the profile.
     There are ten profiles available for AUTODOME cameras. Each profile can be used for one preset.
4.   Only AUTODOME cameras: In the **Scene** list, select an entry.
     The camera positions for individual presets must be defined in advance. These presets may already be named individually.
     Only presets that are not yet linked to one of the profiles are available.
5.   If necessary, select an **Aggregation time [s]** between 0 and 20 seconds.
     The aggregation time always starts when an alarm event occurs. It extends the alarm event by the value set. This prevents alarm events that occur in quick succession from triggering several alarms and successive events in a rapid sequence. No further alarm is triggered during the aggregation time. The post-alarm time set for alarm recordings only starts once the aggregation time has expired
6.   In the **Analysis type** list select MOTION+.
     Note: If you change the analysis type, the motion detection and tamper detection parameters revert to the default settings.
     As soon as the analysis becomes active, meta data is generated and, depending on the configuration, additional information is overlaid on top of the camera image — an object bounding box for example.
7.   Click **Configuration**.
     Configure MOTION+ using this window.

Notice!

If the MOTION+ configuration of this camera is in use, no other users can configure MOTION+ of this camera at the same time. Only the first user is able to do this. Other users receive a message that configuration is not possible.

See also

– *Configuring MOTION+, page 12*

6   Configuring MOTION+

This chapter describes the configuration and different settings for MOTION+.

6.1   Configuring tasks - general

▮▬▬▯ in Configuration Manager: **VCA** tab > **Profile #1** or **Profile #2** and MOTION+ > **Tasks** tab

▮▬▬▯ in Web browser: **Alarm** > **VCA** > **Profile #1** or **Profile #**2 and MOTION+ > **Configuration** button > **Tasks** tab

A task is always created or edited using a wizard. When you use the wizard to create or edit a task, you have access to the camera image and the commands, for example to create, edit or delete fields. Expert users can adapt tasks to their requirements using IVA Task Editor.

You can immediately recognize from the color of object outlines whether an object will trigger an alarm with the given settings.

6.1.1   Configuring the Detect any motion task

▮▬▬▯ in Configuration Manager: **VCA** tab > **Profile #1** or **Profile #2** and MOTION+ > **Tasks** tab

▮▬▬▯ in Web browser: **Alarm** > **VCA** > **Profile #1** or **Profile #**2 and MOTION+ > **Configuration** button > **Tasks** tab

When you work with MOTION+ for the first time, the default task **Detect any motion** is already available. This task detects all moving objects in the entire camera image. Initially, even the global settings are preset in such a way that no object is excluded.

This first preset task corresponds in the configuration to the task type **Motion in field**.

6.1.2   Configuring the Motion in field task

▮▬▬▯ in Configuration Manager: **VCA** tab > **Profile #1** or **Profile #2** and MOTION+ > **Tasks** tab

▮▬▬▯ in Web browser: **Alarm** > **VCA** > **Profile #1** or **Profile #**2 and MOTION+ > **Configuration** button > **Tasks** tab

This task generates an alarm event if an object moves within a certain area. The area is defined by a field in the camera image.

To select the task:

1.   On the **Surveillance Tasks** page, click **New**.
2.   On the **Create a Task** page, select **Motion in field** , then click **OK**.
3.   In the **Task name:** box, enter the name of the task.

Define the Field page

1.   Select a field from the list or create a new one.
       To create a new field, click into the camera image to start with the first corner of the field, then click again for each corner. Finish the field by double-clicking.
       Note: You can also select **Whole screen** or edit an existing field.
2.   In the **Debounce time [s]** box, enter the minimum time that an object must remain within the field before it triggers an alarm. To do this, select the field in the camera image first, then enter the value. If necessary, enter the time for each field.
       Note: By entering a value, you can prevent the triggering of multiple alarm events by objects that are constantly moving toward and away from the boundary of the field.

Filter by Motion Properties page

1.   Select the **Activity [% of area]** check box if you wish to filter motion that should trigger
     an alarm event based on their activity. This allows you to set a minimum amount of
     independent and possibly unconnected detection blocks in the field that have to indicate
     changes.
     In this context, an activity is the percentage of the monitored area of the camera in which
     motion is detected.

2.   In the **Activity [% of area]** boxes, enter a minimum and a maximum value for the activity.
     The selected values are displayed in the monitored area of the camera image during input
     by a respectively high number of yellow dots

3.   Select the **Size of cell cluster [% of whole screen]** check box if you wish to filter motion
     that should trigger an alarm event based on their size.

4.   Select the **Size of cell cluster [% of whole screen]** check box, then enter the minimum
     and maximum size of the cell clusters in percentage based on the whole screen.
     The minimum value is displayed in the camera image during the input by a yellow shaded
     rectangle, the maximum value by a yellow frame.

See also

–   *Field, page 7*

6.2   Metadata generation

Notice!

This tab provides access to basic settings that you can adapt for performance optimization.

The settings and values defined here are valid for all tasks.

6.2.1   Configuring the sensitive area

▐▬▐▬▭ in Configuration Manager: **VCA** tab > **Profile #1** or **Profile #2** and IVA > **Metadata
Generation** tab > **Sensitive Area** tab

▐▬▐▬▭ in Web browser: **Alarm** > **VCA** > **Profile #1** or **Profile #**2 and IVA > **Configuration** tab >
Metadata Generation tab > **Sensitive Area** tab

This page allows you to define insensitive areas.

To define insensitive areas:

1.   On the **VCA Masking** page, click **Add**. An insensitive area is added to the camera image.
     Note: You can also define an insensitive area directly in the camera image. To do this,
     click into the camera image. Each click creates a new corner of the insensitive area. A
     double-click closes the insensitive area.

2.   In the camera image, adjust the position and size of the insensitive area if necessary.

3.   Move the **Sensitivity** slider and set the sensitivity:
     Min.: Even minor activities are detected. This setting is useful if the camera has a small
     tilt angle and in environments in which objects are often hidden. However, this setting
     may mean that camera noises (especially in low-visibility conditions) are also detected as
     motion.
     Max.: This setting is useful in simple environments in which objects move in a straight
     line and are not hidden during their motion through the area concerned.

To remove insensitive areas:

▸   On the **VCA Masking** page or in the camera image, select an insensitive area, then click
     Remove.

See also

– *Sensitive Area, page 8*

6.3 Metadata inspection

The values that are displayed allow you to estimate which minimum and maximum values you must enter for the creation of a task to ensure the desired objects are detected.

See also

– *Metadata inspection – statistics, page 9*