

CONFIGURATION

**SEDOR<sup>®</sup>**  
**AI INTRUDER DETECTION**

SETTING UP THE ANALYSIS FUNCTIONS ON THE RECORDER

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# INTRODUCTION

The SEDOR® AI software allows the protection of freely definable areas indoors and outdoors against unauthorised access. The analysis software detects objects approaching a defined area and evaluates their direction of movement and dwell time. The detected events are fed into a powerful object classification system based on neural networks and finally alerted with a corresponding message.

## 1.1 ABOUT THIS DOCUMENT

This guide describes the most important steps as well as general best practices for effective calibration and configuration of Dallmeier video security systems in conjunction with the SEDOR® AI software. This document is intended to assist you in configuring the system to ensure smooth operation of the analysis function.

## 1.2 TARGET AUDIENCE

This guide is primarily intended for installers of video security systems

## 1.3 OTHER APPLICABLE DOCUMENTS AND INFORMATION

This guide describes the recommended configuration of devices and applications in general only. Detailed information and descriptions of your Dallmeier product can be found in the respective product documentation at [www.dallmeier.com](http://www.dallmeier.com).

Current documentation on third-party products can usually be found on the Internet on the corresponding product pages of the respective manufacturer.

You can also obtain information on the latest legal requirements, guidelines and recommendations on the subject of video security and data protection from the respective state-recognised bodies in your country.

# METHOD

The configuration of the SEDOR® analysis function is divided into three steps: Select the type of analysis, calibrate the camera and set up the surfaces to be analyzed.

## 2.1 CHOOSING THE TYPE OF ANALYSIS

Four different types of analysis are available:

### FenceLeft bzw. FenceRight



Fig. 2-1

FenceLeft and FenceRight are designed to monitor each side of a fence.

### OpenArea

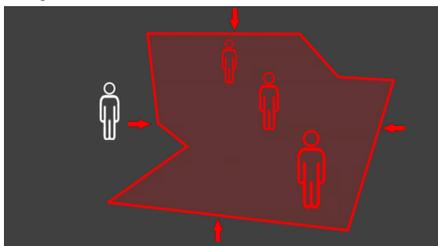


Fig. 2-2

OpenArea offers the possibility to set up a freely configurable area to be monitored.

### StoppedPerson

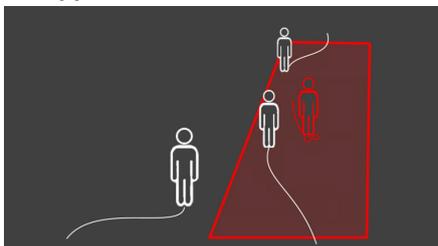


Fig. 2-3

StoppedPerson is intended for the case that only such events (persons, vehicles, etc.) are to trigger an event that stop in a certain area.

## 2.2 CALIBRATION

In order to use the analysis functions, the camera must first be calibrated for this use. The exact procedure for each type of analysis is described in the corresponding subitem.

Basically, the analysis function always works with approximate values and relates all entered values to each other so that a coherent system is created. This means that even fixed measured variables, such as the mounting height of the camera, are changed and readjusted in the course of calibration. The main aim of the calibration is to ensure a functioning analysis, not to represent the scene digitally in a realistic manner. Minor inaccuracies are therefore accepted and cannot be avoided due to the nature of the matter.

Constant readjustment by means of the button “auto” is therefore intended and part of the calibration process.

### 2.2.1 Camera-related measured variables

The required measured variables already in advance to certain facilitates an exact calibration considerably. It is therefore recommended in any case, regardless of the type of analysis, to determine the following data before starting the calibration:

#### Camera angle of aperture

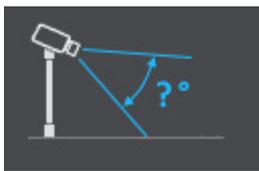


Fig. 2-4

Means the vertical angle of aperture between the lens and the upper and lower edges of the image.

#### Mounting height of the camera

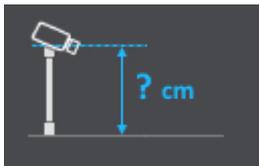


Fig. 2-5

The installation height can be measured as a fixed size or can be taken from any existing planning documents.

#### Base point of the camera

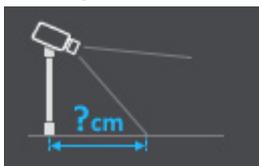


Fig. 2-6

The length of the “blind spot” of the camera - at which distance from the mounting location of the camera the recorded image begins.

## Tilt angle

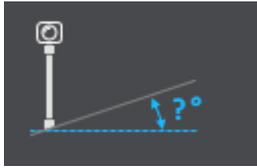


Fig. 2-7

If the angle of inclination is known, it can be entered here. Otherwise, estimated values must be used.

## 2.2.2 Scene related measurands

For further calibration of the camera it is necessary to dimension distances in the image. In order to carry out the dimensioning, the measurement menu must first be activated using the corresponding button at the top of the screen. Thus the different tools are made available with which one can determine own measuring points in the scene and thus determine the length of distances.

### FenceLeft/Right

It is advisable to measure certain fixed values in the scene to be monitored with a measuring rod or tape measure in order to have accurate values available for calibration. Since the dimensioning of the analysis function always starts “from the ground” of the scene, doors, crash barriers, street signs or lanterns, etc. are suitable.

### Tools



Fig. 2-8

The measurement tool is used for horizontal and vertical measurement of distances in the scene. The alignment is automatically recognized by the system and has to be confirmed via a dialog.

The measurement always refers to the floor area of the scene. This means that at least one point of the section must be “on the ground”. For example, the height of a street lamp or a fence post can be used for the measurement, but the height of a window in the wall is not suitable.

With the person tool, the figure of a person with a certain size is created, which can then be moved back and forth in the image for test purposes. The person’s frame shows at which point in the image the object is recognized as a person (green) or not (red).

### OpenArea/StoppedPerson

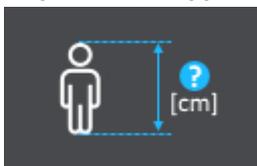


Fig. 2-9

If persons are to be involved in the calibration, their size must be known.

## 2.2.3 Tools for checking

In order to be able to check the length of distances, the ruler menu must first be activated using the corresponding button at the top of the screen. This activates the various tools.



Fig. 2-10

The horizontal and vertical measurement tools work in the same way as the dimensioning tools. The person button provides you with a virtual person of adjustable size that you can move back and forth in the image. If possible, the size should remain the same. Apart from that, the red or green edge of the person indicates whether the spatial resolution at the corresponding point meets the minimum requirements for analysis (green) or falls below them (red).

## 2.3 SETUP OF AREAS

The Configuration tab can be used to set the different areas which determine in which area the analysis is started or a message sent. In addition, a threshold value for the analysis and the event classification can be set here.

If the required tool is activated, the corner points of the area to be created can be defined with a left click. Further tools allow the addition of additional corner points to map more complex surfaces and the deletion of individual corner points.

### Alarm zone (red)

If an object enters the alarm zone, the analysis triggers an alarm event.

### Pre-alarm zone (yellow)

If an object enters the pre-alarm zone, the analysis begins with the observation and classification of the object.

### Event Classification

If only certain objects, for example pedestrians or vehicles, are relevant for the analysis of a scene, the superfluous object classes can be excluded here.

### Event Threshold

Here the sensitivity of the analysis function can be determined with the slider.

For example, it is recommended to reduce the sensitivity if irrelevant objects trigger unwanted events.

# CONFIGURATION

 It is recommended that you familiarize yourself with the general procedure and function of the tools used in the previous chapter prior to configuration.

## 3.1 SELECTION OF THE ANALYSIS TYPE

Depending on the analysis function, certain areas are available with which you can set the different zones in which alarms are to be triggered or the analysis is to begin.

► Open **Recording** > **Cameras / Tracks** > **Analysis**.

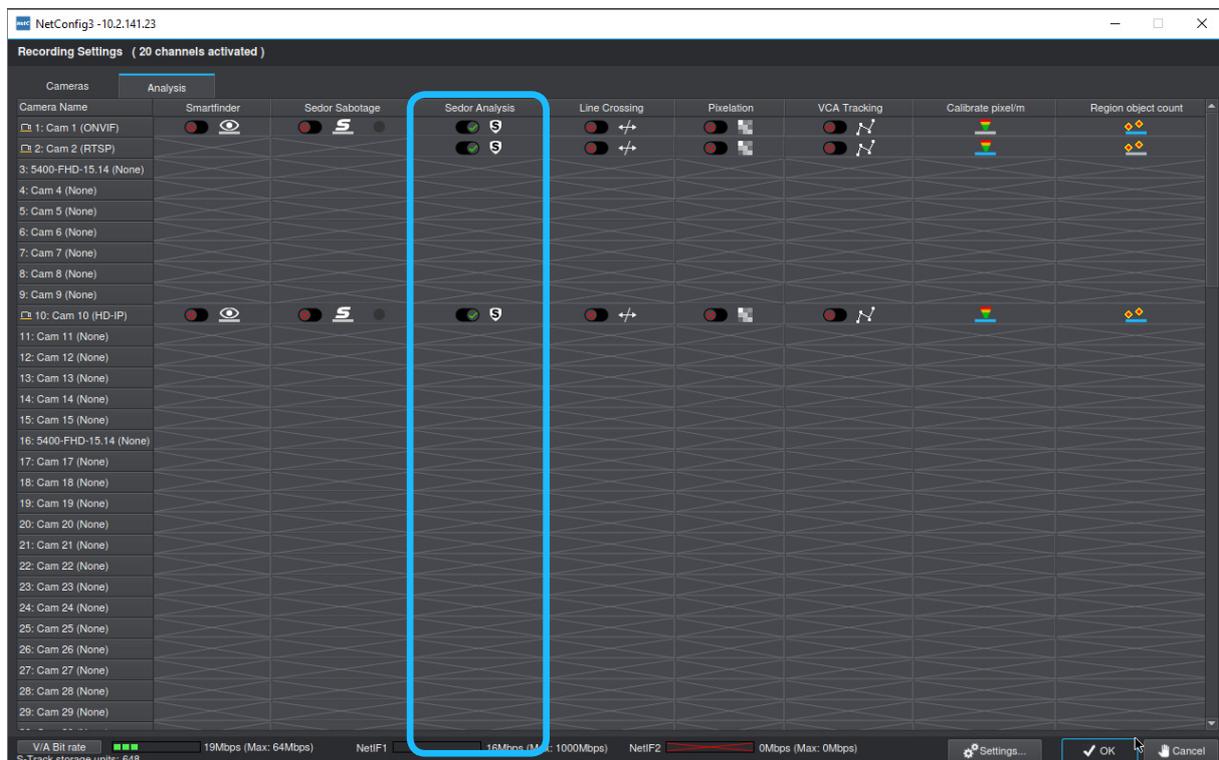


Fig. 3-1

► Activate **Sedor Analysis** for the required **camera** using the appropriate button.

The configuration dialog is displayed.

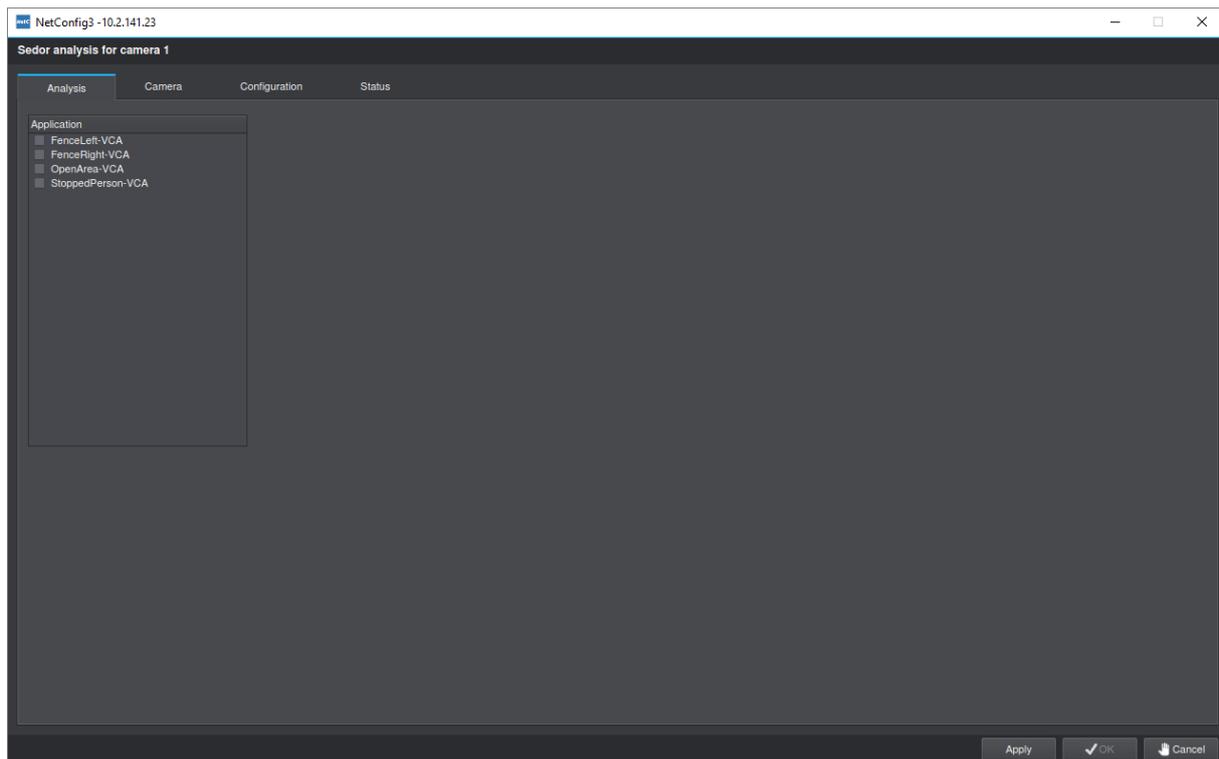


Fig. 3-2

- ▶ Select the required **Application** by clicking on the corresponding check box (see below).

## 3.2 CONFIGURING FENCE LEFT/RIGHT

**FenceLeft** or **FenceRight** are intended for monitoring the respective side of a fence.

### 3.2.1 Calibration of the camera

- ▶ Select the **Camera** tab.

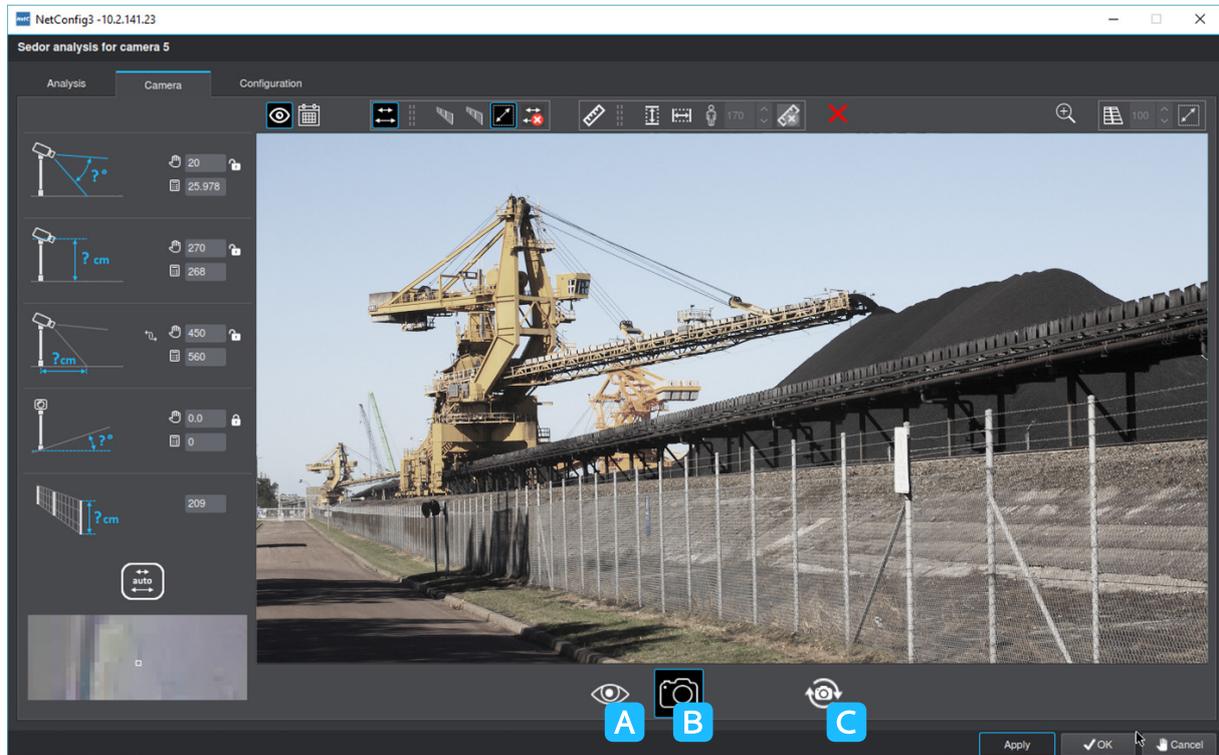


Fig. 3-3

- A** Live view
- B** Image view
- C** Refresh image

- ▶ Use the three **buttons** at the bottom of the screen to select a suitable still image to calibrate the camera.

or

- ▶ Switch from **Live mode** to **Replay track** mode to use a recording for calibration.

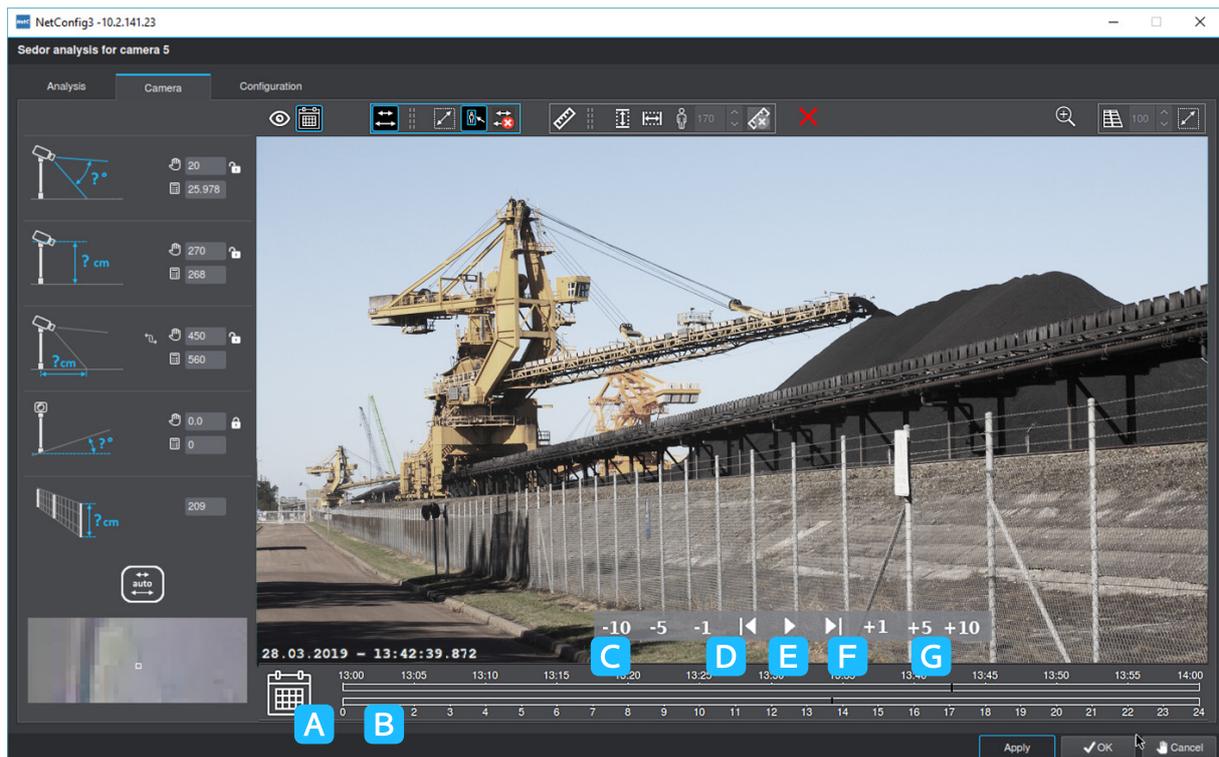


Fig. 3-4

- A** Play forward   **B** Next frame   **C** Previous frame   **D** +1/5/10 Minutes   **E** -1/5/10 Minutes
- F** Select Date   **G** Zeitleiste

- ▶ Use the **playback controls** at the bottom of the screen to select a suitable still image to calibrate the camera.

**i** *The calibration automatically tries to generate suitable values for the individual fields. If certain sizes are measured reliably, for example the height, this can be determined with the lock symbol. This will set a secure parameter that doesn't change and allow a more accurate calculation of the other values.*

- ▶ Specify the aperture angle of the camera.
- ▶ Specify the mounting height of the camera.
- ▶ Specify the foot of the camera.
- ▶ Specify the tilt angle of the camera if necessary.
- ▶ Enter the height of the fence.
- ▶ Click the **Auto** button and check or correct the values.
- ▶ Click the **Calibrate** button.
- ▶ Select the **Fence bottom line** tool and draw the and bottom edge of the fence in the image.

**i** *Note the magnifying glass in the lower left corner of the screen for assistance when drawing.*

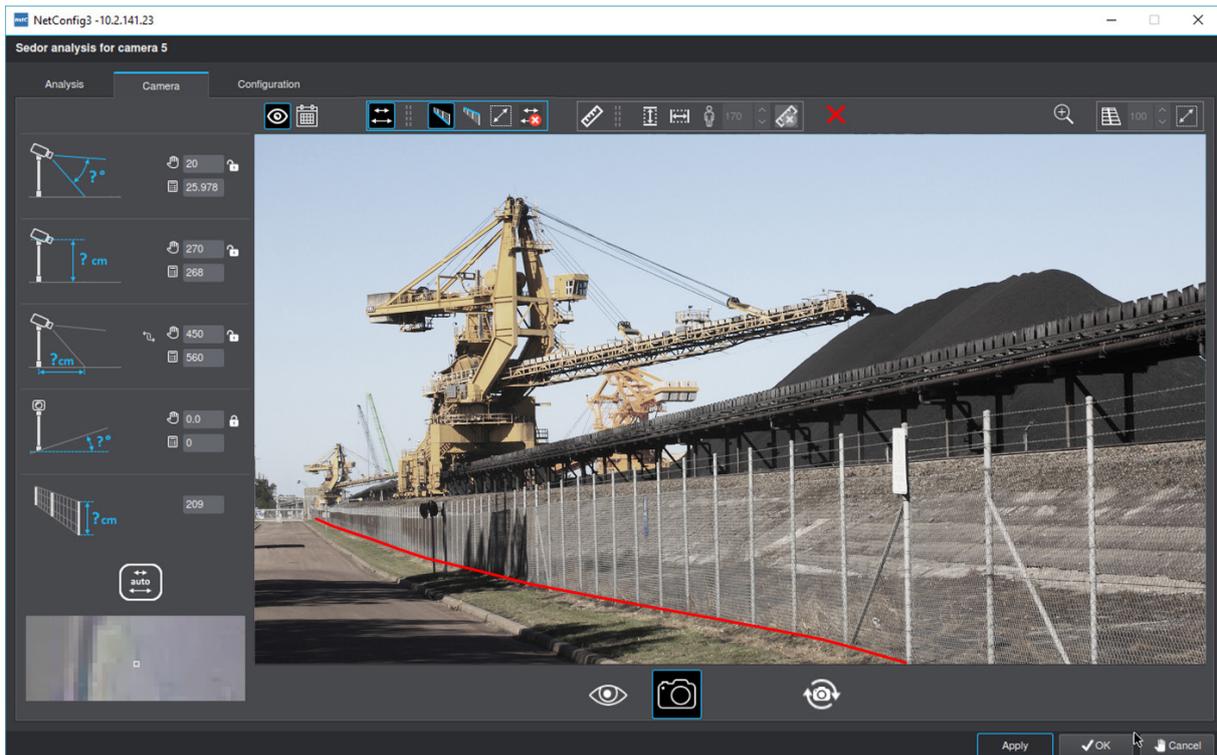


Fig. 3-5

- ▶ Select the **Fence top line** tool and draw the and top edge of the fence in the image.

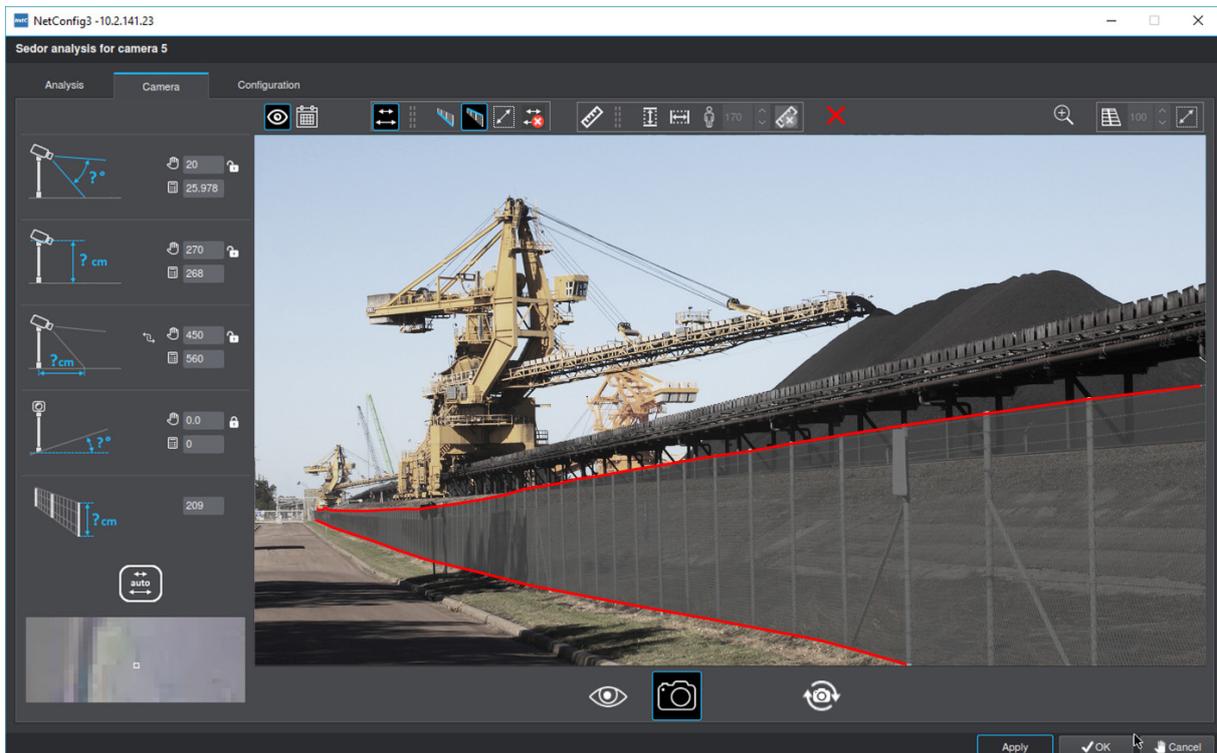


Fig. 3-6

- ▶ Draw the height of the fence by dragging and dropping with the **Free calibration points** tool. You can use the screen magnifier at the bottom left to draw the fence posts.





## 3.2.2 Setting up areas

- ▶ Switch to the **Configuration** tab.
- ▶ Select the required **Region** (zone) from the menu.
- ▶ Use drag and drop to set the corner points of the required zone in the still image.
- ▶ Select the required **Region**.

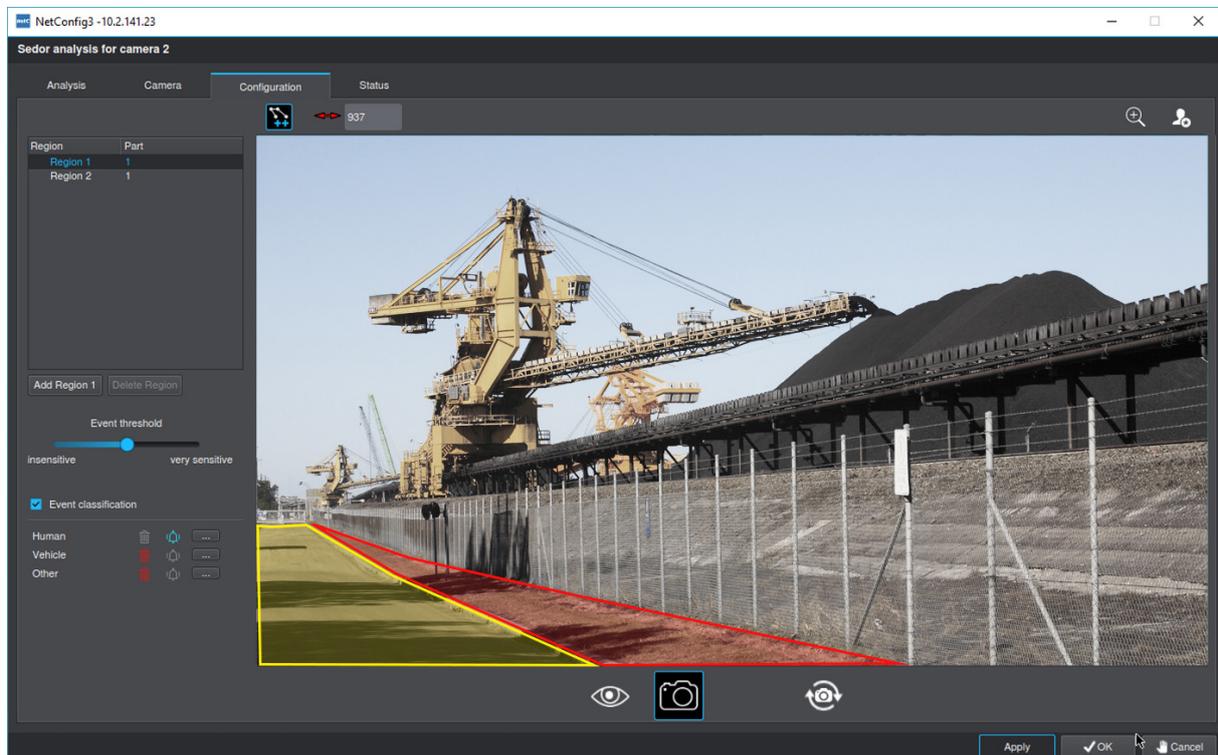


Fig. 3-10

 *The FenceLeft/Right function offers two zones for monitoring the relevant area: The pre-alarm zone Region 2, yellow in the image, and an alarm zone Region 1, red in the image.*

- ▶ Use the **Add Region 1** or **Add Region 2** buttons to add additional zones of the appropriate type, if necessary.
- ▶ If necessary, use the **Add point** or **Delete point** buttons to adjust the required zones more closely to the still image.
- ▶ Use the slider **Event threshold** to set the sensitivity of the function.

The function can distinguish between certain events.

- ▶ Activate the **Event classification** checkbox.
- ▶ Activate the required **events** with the **bell** button, if necessary.
- ▶ Deactivate the non-relevant **events** with the **garbage can** button, if necessary.

## 3.3 CONFIGURING OPEN AREA/STOPPED PERSON

The **OpenArea** option offers the possibility of setting up a freely configurable area that is to be monitored.

**StoppedPerson** is intended for the case that only such persons should trigger an event, which stop in a certain area.

### 3.3.1 Calibration of the camera

► Select the **Camera** tab.

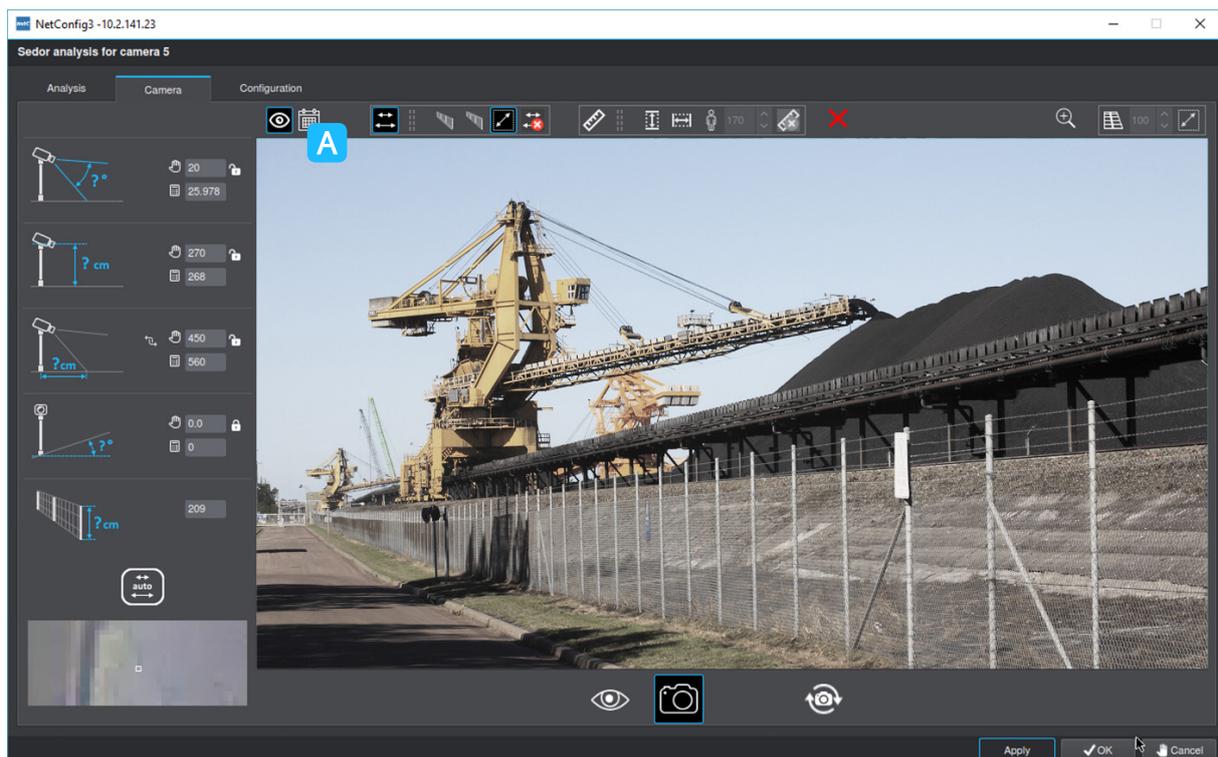


Fig. 3-11

#### A Replay mode

Switch from **Live mode** to **Replay track** mode to use a recording for calibration.

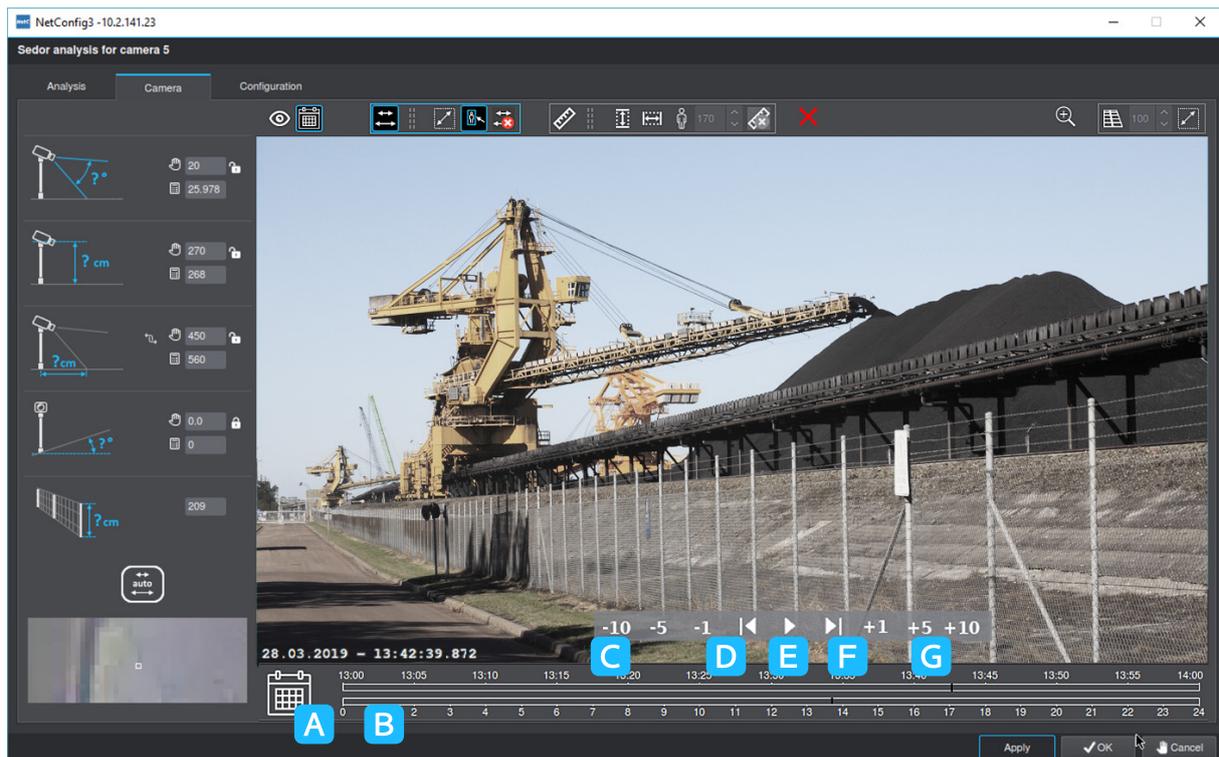


Fig. 3-12

- A** Calendar    **B** Timeline (upper/lower = fine/coarse)    **C** -1/5/10 Minutes    **D** Frame back  
**E** Play    **F** Next frame    **G** +1/5/10 Minutes

**i** *The calibration automatically tries to generate suitable values for the individual fields. If certain sizes are measured reliably, for example the height, this can be determined with the lock symbol. This will set a secure parameter that doesn't change and allow a more accurate calculation of the other values.*

- ▶ Use the **playback controls** at the bottom of the screen to find a suitable event to calibrate the camera, such as a person.

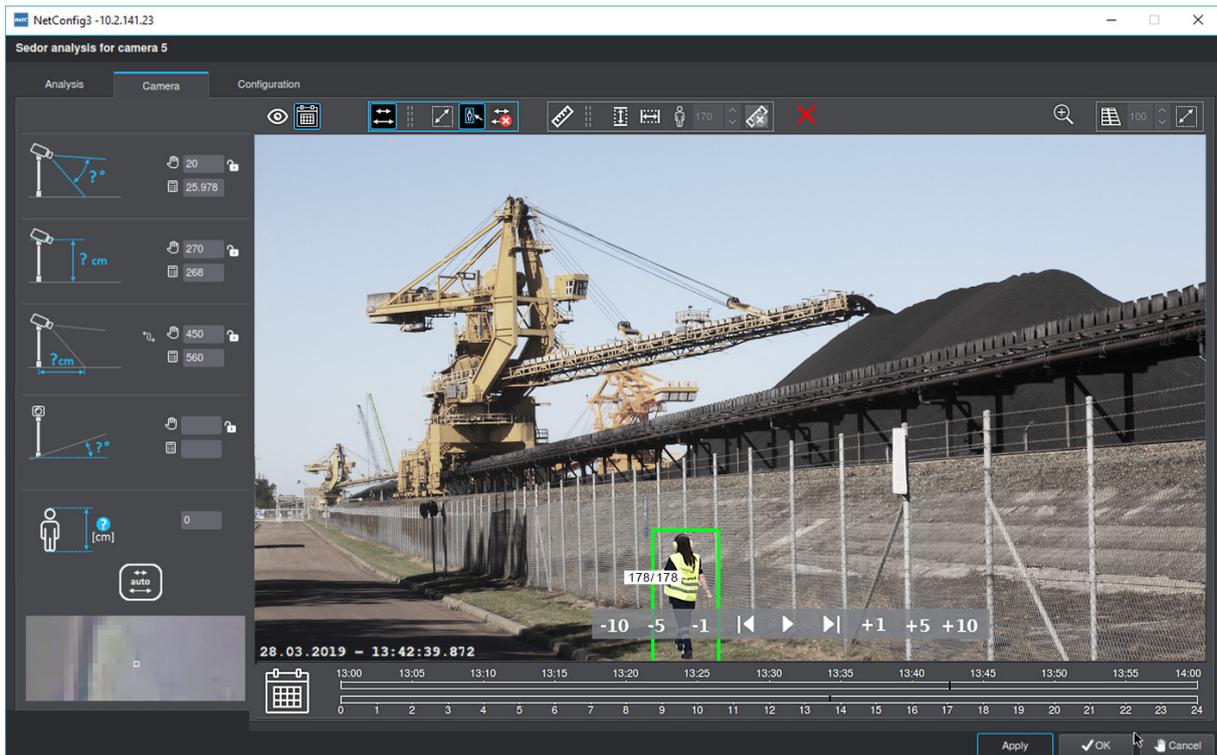


Fig. 3-13

- ▶ Select the **event box** (green) with the **Select objects** tool and enter the correct size.
- ▶ Fast forward a few seconds.
- ▶ Select the **event box** again with the **Select objects** and enter the correct size.

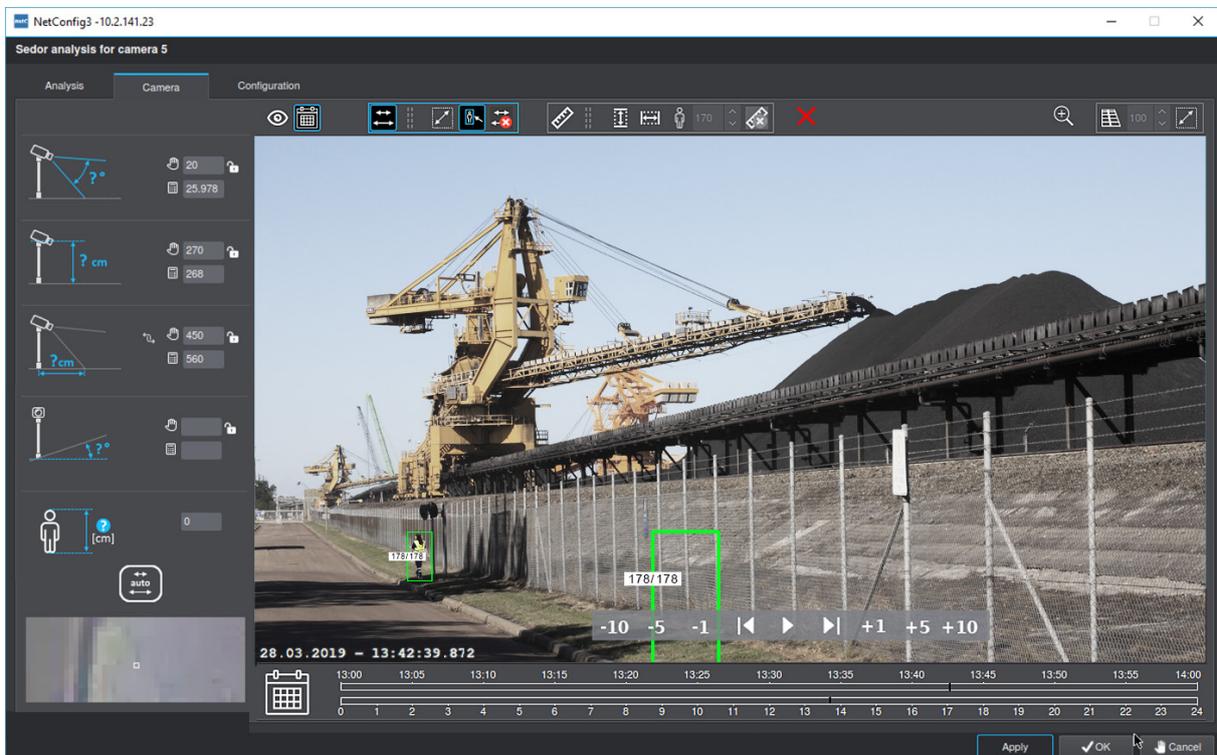


Fig. 3-14

- ▶ Repeat this procedure as often as necessary to obtain useful readings.
- ▶ Specify the aperture angle of the camera.

- ▶ Specify the mounting height of the camera.
- ▶ Specify the foot of the camera.
- ▶ Specify the tilt angle of the camera if necessary.
- ▶ Enter the height of the fence.
- ▶ Click the **Auto** button and check or correct the values.

 Note the magnifying glass in the lower left corner of the screen for assistance when drawing.

- ▶ Drag and drop horizontal and vertical lines of known size into the image using the **Free calibration points** tool.
- ▶ In the confirmation dialog, check the correct alignment (horizontal/vertical) and correct it if necessary.
- ▶ Use the **Delete objects** button to correct your input by removing certain stretches, if necessary.

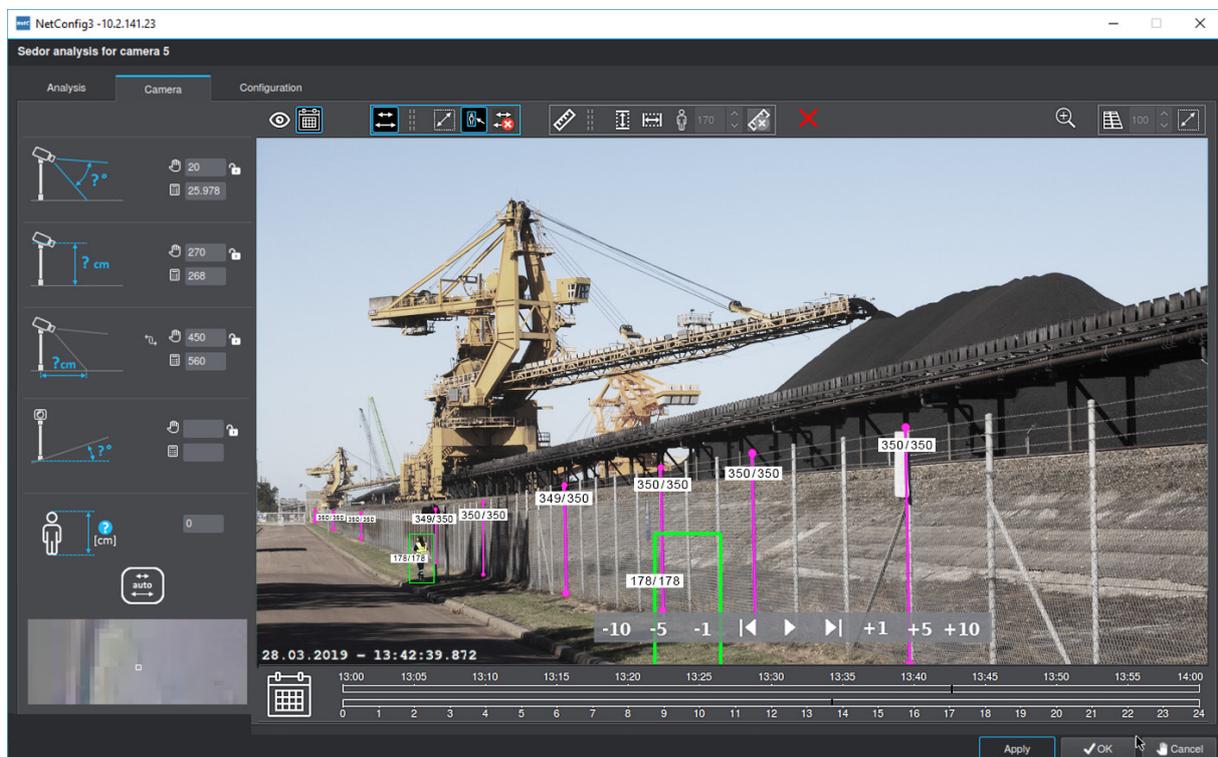


Fig. 3-15

- ▶ Click the **Messure** menu button.
- ▶ Measure known distances with the available tools (drag & drop analogous to the measuring tool).
- ▶ Correct your entries if necessary.
- ▶ Click the **Show grid** button to show the grid.

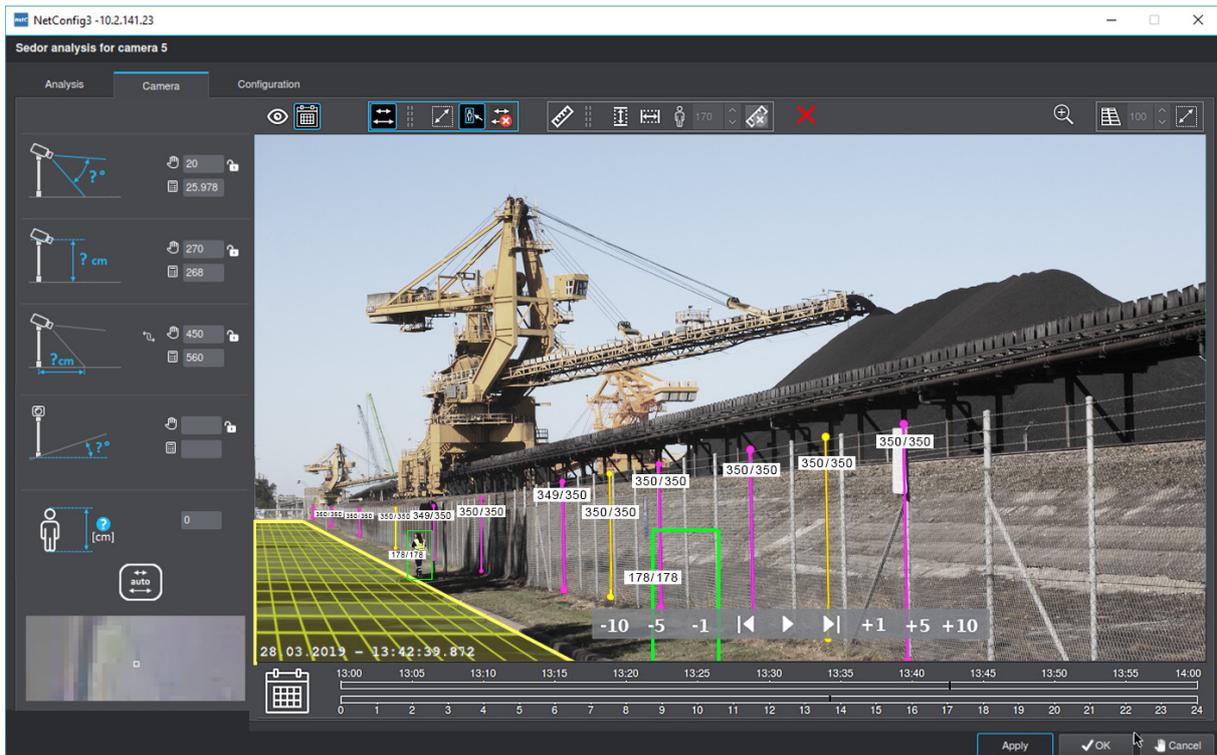


Fig. 3-16

The grid spans the floor area of the coordinate system, which uses the analysis function as a reference. If the grid does not coincide with the floor area and is skewed or twisted in space, the camera is incorrectly calibrated. For example, this could be due to a horizontal line that has been stored as vertical in the system.

### 3.3.2 Setting up areas

- ▶ Switch to the **Configuration** tab.
- ▶ Select the required **Region** (zone) from the menu.
- ▶ Use drag and drop to set the corner points of the required zone in the still image.

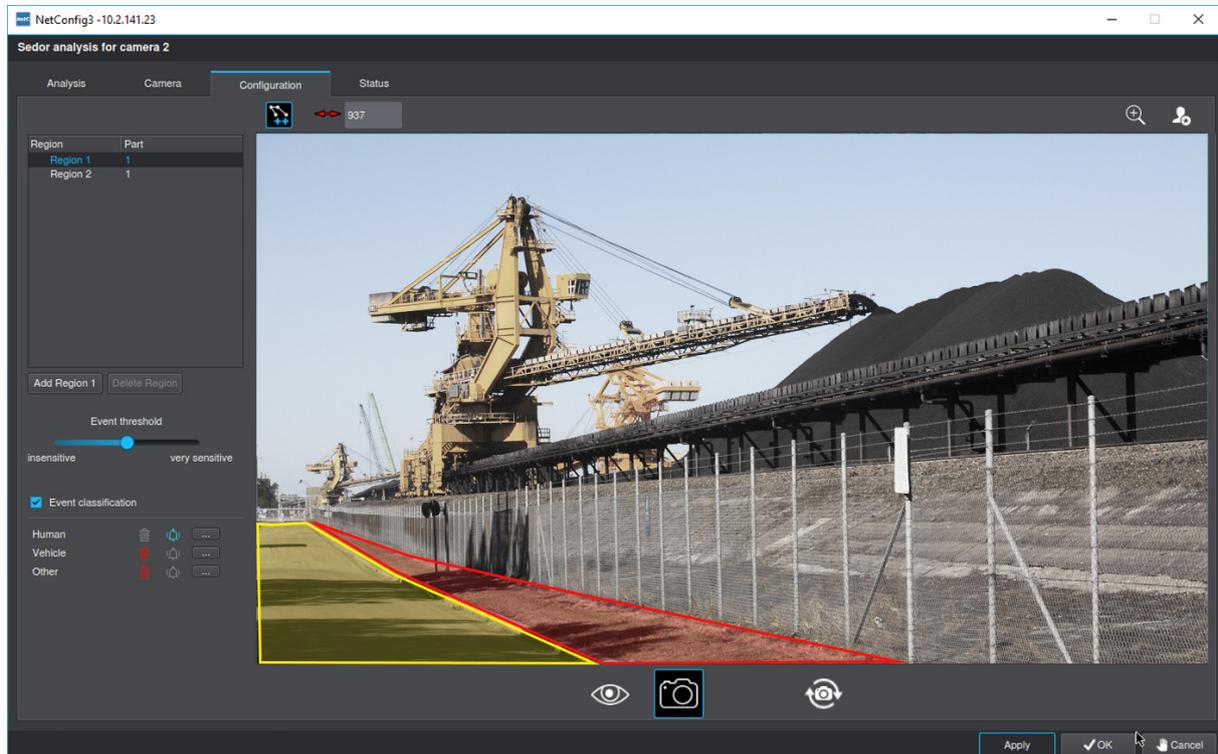


Fig. 3-17

 *The Fence Left/Right function offers two zones for monitoring the relevant area: The pre-alarm zone Region 2, yellow in the image, and an alarm zone Region 1, red in the image.*

- ▶ Use the **Add Region 1** or **Add Region 2** buttons to add additional zones of the appropriate type, if necessary.
- ▶ If necessary, use the **Add point** or **Delete point** buttons to adjust the required zones more closely to the still image.
- ▶ Use the slider **Event threshold** to set the sensitivity of the function.

The function can distinguish between certain events.

- ▶ Activate the **Event classification** checkbox.
- ▶ Activate the required **events** with the **bell** button, if necessary.
- ▶ Deactivate the non-relevant **events** with the **garbage can** button, if necessary.



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