WHITE PAPER

Focus recall

Instant focus even in challenging lighting conditions

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AXIS COMMUNICATIONS

Summary

Focus recall makes it easy to use a PTZ camera optimally in challenging lighting conditions, typically in scenes with low contrast and point-shaped light sources such as strong headlights from meeting traffic.

As soon as you have set the focus recall area the function is automatic, giving instant focus when you pan or tilt the camera view manually past the predefined area. You don't have to choose the focus recall area from a menu or remember where it is – it appears automatically and instantly when you need it.

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1 Introduction

This white paper describes what focus recall is and discusses the differences between autofocus, presets, and focus recall.

2 What is focus recall?

Focus recall provides instant focus in predefined areas, making it easier to use a pan/tilt/zoom (PTZ) camera optimally in challenging lighting conditions. To use focus recall, you just click a button when you're satisfied with the focus of the current view, and the camera creates a focus recall area. Later, when you manually pan or tilt the camera and the camera view moves into a focus recall area, the camera automatically recalls the previously set focus for that view. Even if you zoom in or out, the camera will keep the same focus position.

The focus recall feature is useful in scenarios that require a lot of manual operation, such as using a joystick. Focus recall is especially beneficial in scenes with low contrast and point-shaped light sources, such as strong headlights from meeting traffic.

In autotracking, the PTZ camera automatically detects a moving object and tracks it, changing the view as the object moves. Using focus recall areas in autotracking, the camera will find focus instantly. In recorded guard tours, the camera displays a number of previously chosen camera views or paths. You can use focus recall areas to speed up focusing also during recorded guard tours.

3 Difference between autofocus, presets, and focus recall

3.1 Autofocus

A camera with autofocus focuses automatically. The autofocus feature requires neither setting nor programming to work. In Axis PTZ cameras, it is activated by default and starts working as soon as the camera is turned on.

In scenes with low light or contrast or scenes that contain a lot of noise the autofocus might need some time to find focus, and sometimes it will even focus on the wrong object. When the scene changes, focus can be lost for a moment until the autofocus feature finds it again. This can give you the impression that focus is coming and going repeatedly. A focus recall area in the desired view is a quick and easy way to regain focus immediately.

The main difference between autofocus and focus recall is that autofocus will adjust focus every time the scene changes. Focus recall instead memorizes an area with a fixed focus, eliminating the need for repeated adjustments. This makes focus recall a faster way to find focus in a specific, predefined area. In addition, when autofocus is used in a scene with a lot of movement or noise, there may be frequent changes in focus. Focus recall would find focus instantly.

For more information about autofocus, see *axis.com/products/ptz-cameras*.

3.2 Presets

To use a preset, you save the current PTZ and focus settings, finding focus either manually or using the autofocus feature. You give the preset a suitable name, for example, Gate.

To return to the preset, you actively tell the camera to return to the preset, for example, by choosing it from a drop-down menu. You can't use the joystick to go to the preset. As a comparison, focus recall is activated automatically as soon as you pan or tilt past the focus recall area using the joystick.

A preset focuses on a single point, while focus recall saves the entire view as a focus recall area. When you choose a preset, the camera moves to the preset position. In focus recall, on the other hand, the camera automatically gets focus when it moves into a scene with a focus recall area.

4 How does focus recall work?

The focus recall feature is very easy to use. You set a focus recall area by clicking the focus recall button when the view has the desired focus. The focus recall button is located in the live view control bar of the camera's web interface.

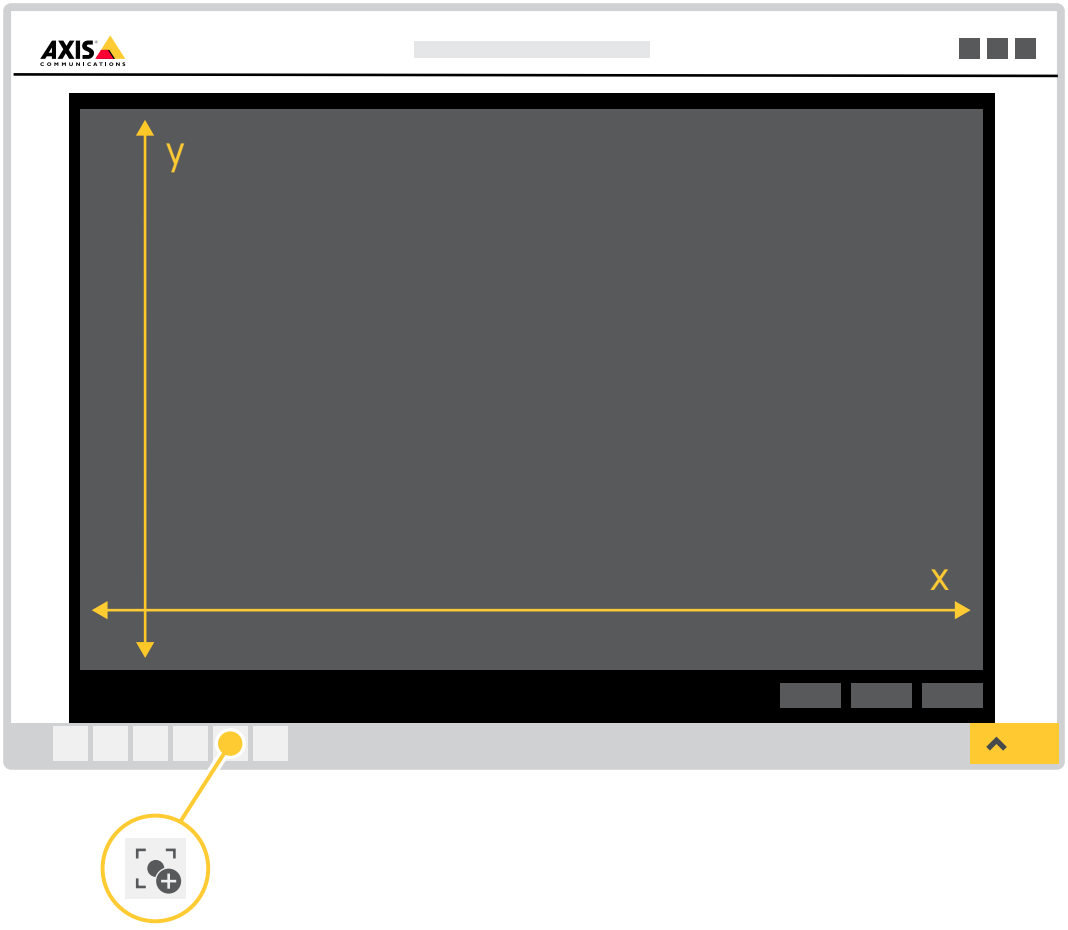

Figure 1. The camera's web interface with focus recall button. X is the pan range, Y is the tilt range.

When you click the focus recall button, the entire view that the camera is currently showing becomes a focus recall area. When you add a focus recall area, the camera saves its focus setting. The focus recall button changes to a minus sign (–), indicating that the focus recall area is set. Before you click the focus recall button you can either use the focus set by autofocus or choose focus manually. Optimally, you should set a focus recall area when the camera has been zoomed in on an object of interest. You can set up to 20 individual focus recall areas.

If you want to remove a focus recall area, you move the camera into the focus recall area and click the focus recall button again. The button toggles to display a plus sign (+), indicating that the area has been removed and that it's possible to set a new area in the view.

If you want to locate a set focus recall area actively, you need to move the camera view until the plus sign of the focus recall button changes to a minus. However, because focus recall is activated automatically when you pan or tilt the camera view past a focus recall area, you don't need to search for areas. When 50% of a focus recall area is visible in the camera view, the camera activates the focus recall feature automatically.

The focus recall feature can easily be integrated into video management systems (VMS) using VAPIX®, Axis own open application programming interface (API). For more information, see *https://developer.axis.com/vapix*

5 Use cases

Focus recall is useful in low-light conditions in scenes with a lot of movement, noise, and point-shaped light sources, such as transportation and traffic surveillance with 24/7 surveillance staff.

Figure 2. Example of traffic surveillance with many point-shaped light sources and a lot of movement.

5.1 Examples of focus recall areas

The first example is a parking garage exit where car headlights tend to make it difficult for a camera to focus. If you set the exit as a focus recall area you will be able to quickly see the license plate of cars leaving the garage. As soon as you pan or tilt the camera view into the focus recall area, the camera will focus on the license plate.

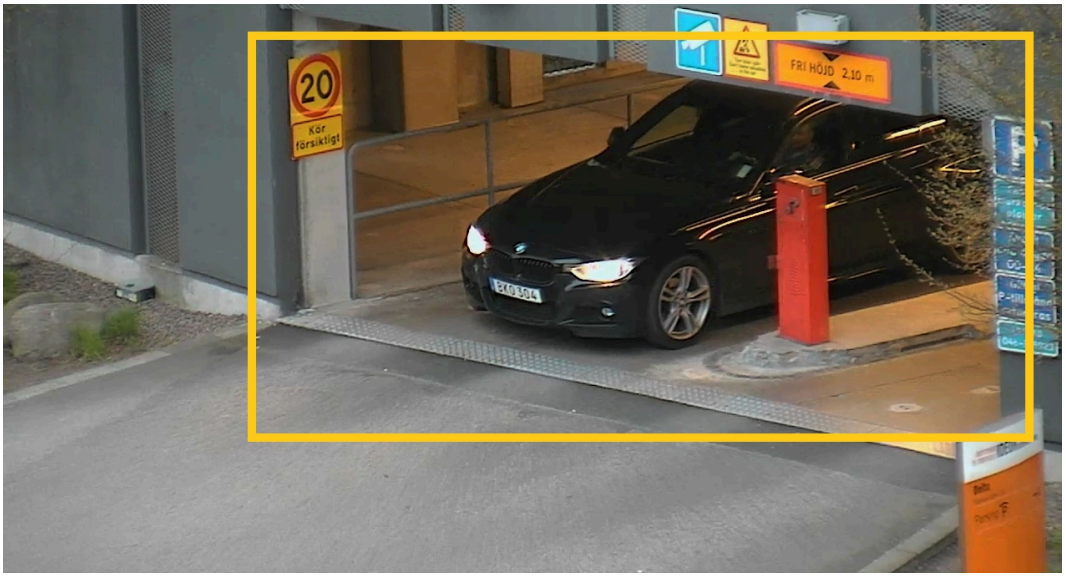

Figure 3. A focus recall area at a parking garage exit. Note that the yellow box is for illustration only – it's not part of the focus recall feature and won't be visible on the screen.

The next example is a street with poor contrast and fast moving vehicles. If you set a stretch of the street as a focus recall area you will be able to recognize vehicles quickly.

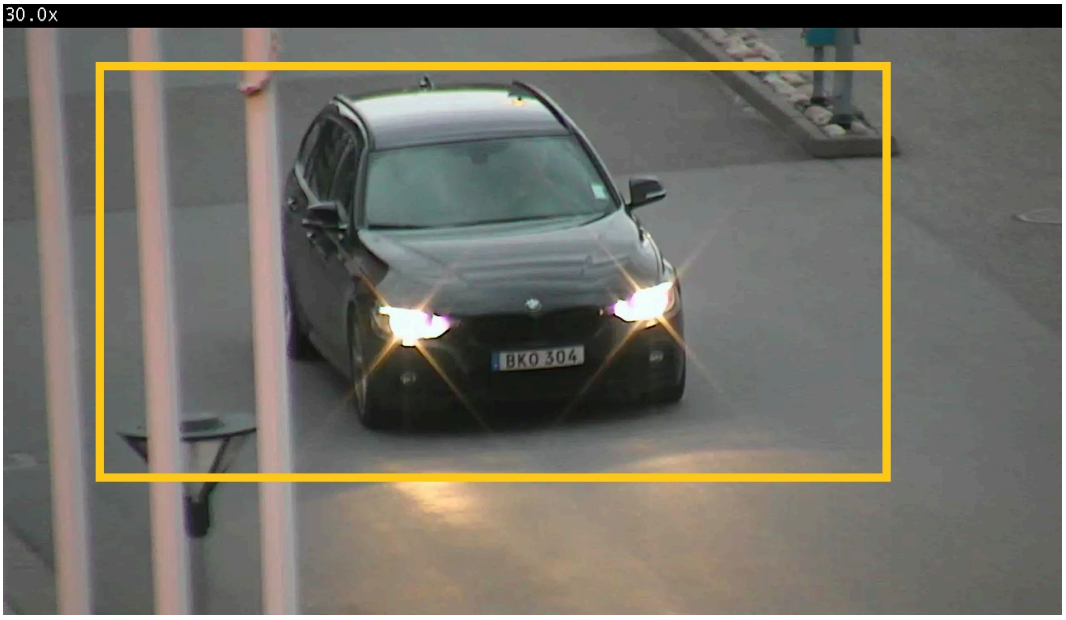

Figure 4. A focus recall area in a street. Note that the yellow box is for illustration only – it's not part of the focus recall feature and won't be visible on the screen.

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About Axis Communications

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Axis has around 4,000 dedicated employees in over 50 countries and collaborates with technology and system integration partners worldwide to deliver customer solutions. Axis was founded in 1984, and the headquarters are in Lund, Sweden