Prevent / reduce IR reflections on dome cameras with built-in IR

Please note that AXIS does not take any responsibility for how this configuration may affect your system. If the modification fails or if you get other unexpected results, you may have to restore the factory default settings as described in the User's manual.
Introduction

Axis dome cameras with built-in IR illuminator enable video surveillance at night or in dark environments. The IR illuminator provides discreet and covert illumination for network video while minimizing light pollution. However, IR-light reflected by close objects can significantly deter image quality at night. The reflections may cause a cloudy effect in the image or mirroring effects in the bubble. In some cases you may even see the camera lens mirrored in the bubble. This is usually caused by either:

- IR-Reflection from nearby objects
- Reflections from external light sources
- Water droplets on the outside of the bubble
- Dirt and dust

Below we have listed a few considerations that should be taken into account to avoid these potential problems and achieve the best possible results.

1. IR-Reflections on nearby objects

Walls, eaves, ceilings and other objects may reflect IR light back into the camera. The strength of this effect depends on the proximity and surface of the object. As a rule of thumb, light and glossy surfaces, metal and glass will reflect more light than dark, matt objects.

Avoid direct reflections from nearby objects. The IR beam should not be directed towards near walls or ceilings, windows and other objects with high reflectivity. The camera’s angle of illumination might be wider compared to the angle of view so you should not rely on the camera image to determine if an object is in the path of the IR beam. Highly reflective objects could be covered or painted to reduce reflections.
2. Reflections from external light sources

External light (for example another camera or white light lamp) pointing towards the camera might lead to reflections in the bubble.

3. Lens orientation

When installing the camera on wall or ceiling, the lens should be tilted as little as suitable for the installation to avoid reflections from the nearby surfaces. The rubber ring around the lens should not be removed as it prevents light interference. It is important that the rubber touches the bubble.

For M3024-LVE cameras produced before 2014 you can request an additional reflection shield for the lens at the AXIS Helpdesk:
The reflection shield is pre-mounted on the later revisions.

4. Dust, dirt, rain, snow and ice

Even small water droplets, dust, and other objects such as spider webs on the bubble will deteriorate image quality substantially by reflecting IR light. If possible, the camera should be mounted in a place where it is less exposed to the weather.

The camera bubble should be regularly cleaned to remove dirt and dust. We recommend to use a mild soap detergent, water and a soft microfiber cloth to avoid scratches on the camera. Dust on the camera could be removed with compressed air.

In some situation where water droplets are a common issue it may help to regularly apply a water repellent spray on the outside of bubble such as those used for the visors of motorcycle helmets.

5. Built-in features to prevent reflections

Axis P-line dome cameras with built-in IR illumination offer also a couple of built-in features to provide best image quality even during the night mode. Axis' OptimizedIR automatically adapts to the zoom level set at installation, ensuring an evenly illuminated image. There is also possibility to adjust the intensity of the IR LEDs on the camera’s Live View page to adapt the best light intensity and reduce the risk for reflection.

Some models of Axis dome cameras with built-in IR illumination are delivered with semi-smoked dome which also helps to reduce the reflections. There are smoked domes available as accessory for most of the camera models. Please be aware of that using smoked dome might reduce the light sensitivity.