



# Introducing P-Iris Technology

Offering optimal image quality with good depth of field

A Milesight Technology Moment

# 1.Summary

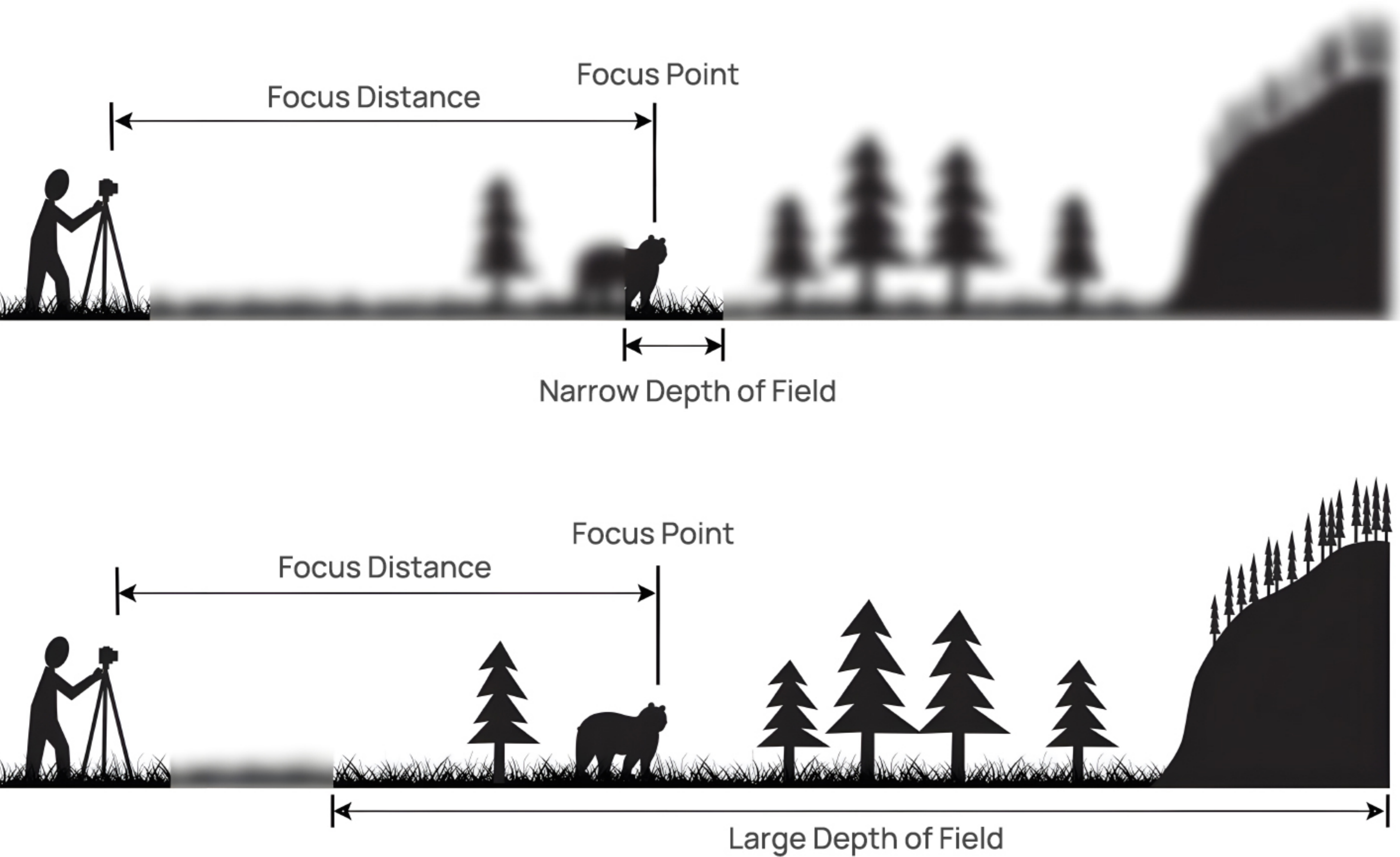
With the widespread application of network video surveillance systems in various fields, there is an increasing demand for high-performance surveillance camera technology. This white paper aims to introduce the key role of P-Iris (Precise Iris) technology in network video surveillance systems, explaining its significant advantages in enhancing image quality and system reliability. It provides customers with a clear understanding of the technology.

## 2.Why P-Iris is Needed

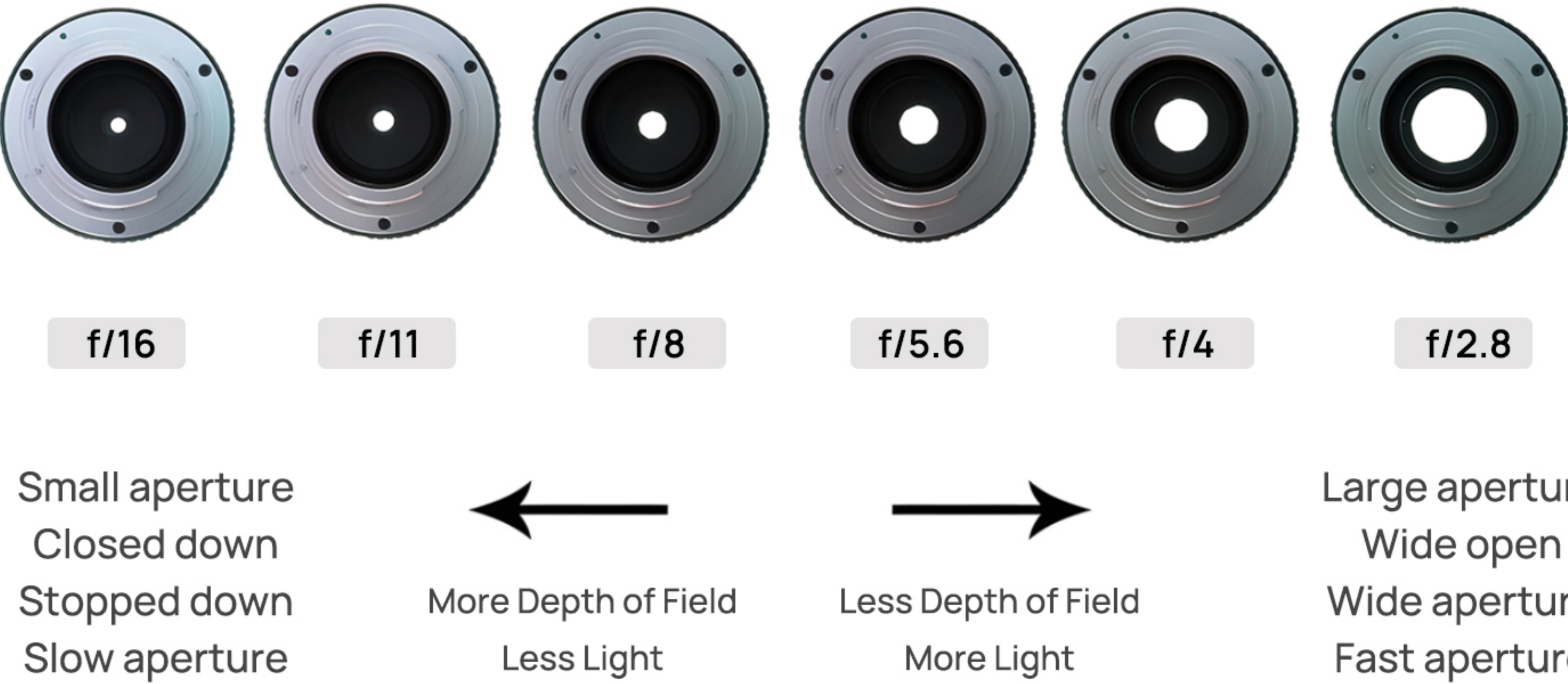
To comprehend the essence of P-Iris and its indispensability, let's delve into the relevant backdrop: understanding Depth of Field, Aperture, and DC-Iris.

### 2.1.Depth of Field, Aperture Overview

**Depth of Field:** The range of relative sharpness in front of and behind the focus point captured by the camera. In surveillance systems, it is evident that we require a larger depth of field.



**Function of Aperture:** The aperture controls the amount of light passing through the lens. Without an aperture, in extremely bright environments, the image may become overexposed, whereas in low-light situations, it may appear too dark. Additionally, the aperture also influences the depth of field and sharpness of the image. A larger aperture results in a shallower depth of field, but reducing the aperture excessively can introduce diffraction, leading to image blurring.



## 2.2.Limitations of the Traditional DC-Iris Solution

Direct Current Iris (DC-Iris) is capable of automatically adjusting the aperture size based on changes in light intensity. However, DC-Iris solely relies on light intensity to regulate the aperture and does not take into account the impact of aperture on other factors affecting image quality (such as depth of field).

**Existing problem: DC-Iris can only control the opening or closing of the aperture based on light intensity and cannot provide precise positioning of the aperture for optimal image quality. Therefore, it cannot effectively control the aperture size. The introduction of P-Iris aims to address this issue.**

## 3.Benefits of P-Iris

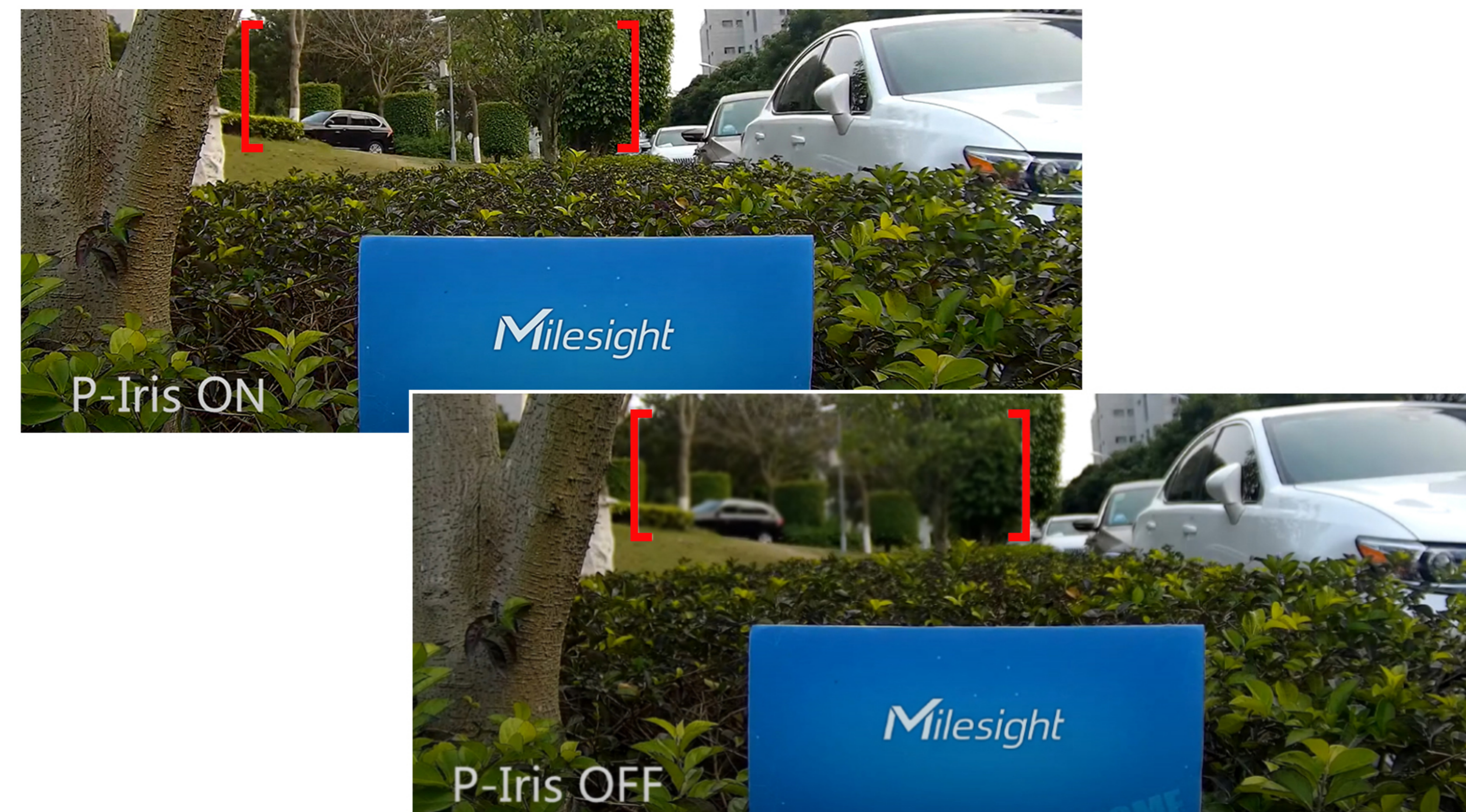
### 3.1.Working Principle of P-Iris

P-Iris is a technology that dynamically and precisely controls the aperture size by controlling the stepper motor in the P-Iris lens. It is equipped with a high-precision aperture position feedback control system. This system can monitor the position of the aperture in real-time and transmit feedback information to the software system. With precise aperture control, it can provide excellent image quality under different lighting conditions.

### 3.2.Advantages

In network video surveillance systems, complex and changing lighting environments, such as outdoor settings, are common. In such scenarios, the primary task of DC-Iris is to respond to the actual scene illuminance level and continuously adjust the aperture size without knowing the specific position of the aperture. The main purpose of P-Iris, on the other hand, is to set the optimal aperture position so that the central and most effective parts of the lens are utilized. This greatly reduces optical errors and improves image quality.

P-Iris cameras, through rapid and accurate aperture adjustments, can better adapt to dynamic scenes in network video surveillance systems. Whether it's fast-moving targets or changes in lighting conditions, P-Iris cameras can provide stable and clear images. Compared to DC-Iris, P-Iris technology enables fast and precise automatic aperture adjustments, taking into account both the illuminance level and the impact of aperture size on image quality, such as depth of field, ensuring that the image remains in optimal condition.



## 4. Conclusion

P-Iris (Precise Iris) technology works in synergy with the electronic system to dynamically adjust the gain and exposure time of image capture, effectively responding to minor changes in lighting conditions and aiming to further optimize image quality. This technology aims to keep the aperture position in an optimal state, resulting in clear and high-contrast images. When the preferred aperture position cannot be adequately corrected through electronic processing, P-Iris cameras automatically adjust the aperture to adapt to the current lighting conditions. In low-light conditions, the aperture may be fully open, while in bright conditions, P-Iris cameras programmatically limit the aperture's closing degree to prevent diffraction or blurring effects. The flexibility and intelligence of this technology ensure optimal image quality in various shooting scenarios.

## About Milesight

Milesight is a fast-growing high-tech company delivering smart IoT and video surveillance products with a focus on IoT technologies, including Artificial Intelligence, 5G and LoRaWAN®, since 2011. With improved sensing capability and advanced IoT insights, we help customers worldwide optimize their business operation in a more efficient and sustainable way. In collaboration with a global network of distributors and system integrators, we are committed to building open ecosystems and accelerating IoT strategies to the next level.

For more information about Milesight, please visit our website [www.milesight.com](http://www.milesight.com).

