Eagle Eye Application Note - AN060

Understanding Eagle Eye Cabinet Systems Outdoor Operating Conditions and Enclosure Ratings

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Target Audience

This Application Note is intended for installers and technicians responsible for deploying Eagle Eye Cabinet Systems, including the installation of Eagle Eye Bridges/CMVRs within NEMA enclosures and adherence to appropriate temperature guidelines.

Introduction

Eagle Eye Cabinet Systems are convenient solutions for outdoor surveillance installations, enabling connection to the Eagle Eye Cloud VMS even in the absence of wired power and network connections. These rugged weather-resistant enclosures accommodate industrial switches, power supplies, and support both pole and wall mounting. Options include Bridge/CMVR Cabinet Systems for LPR, Camera Direct Cabinet Systems for cost-efficiency, and "Anywhere" Camera Direct Cabinet Systems with solar power for remote deployments.

Cabinet System Overview

Eagle Eye Cabinet System overview:

- Bridge/CMVR Cabinet Systems: Provide cellular connectivity in a rugged form factor, and an easy way to move to cloud surveillance.
- Camera Direct Cabinet Systems: Eliminate the need for a Bridge/CMVR, reducing hardware and costs.
- "Anywhere" Camera Direct Cabinet Systems: Powered by solar panels for deployment in remote locations.

For the Eagle Eye outdoor setups, our systems are placed inside enclosures which are specified to protect the internal components from harsh outdoor conditions. The enclosures are robust and designed to ensure longevity and reliability.

Operating Temperature Guidelines

Eagle Eye Cabinet Systems, designed for outdoor installations, are built to withstand a wide range of temperatures. This ensures reliable performance across different environmental conditions.

- **Operating Temperature Range: -20°C to 45°C (-4°F to 113°F)**
    - **Note: Below -20°C battery discharge issues will be experienced. Above 45°C, overcharging will become an issue.**

This range covers most outdoor environments, ensuring that the equipment inside the enclosure operates effectively in both cold and hot environments. The inclusion of cooling fans (on specific models) and the robust design of the enclosures help maintain optimal operating conditions for the internal components, such as the Eagle Eye Bridge/CMVR, industrial switch, and power supplies.

Note: Eagle Eye Networks does not support or warranty any battery modifications.

Solar Panel Performance

It is important to note that there are multiple factors that may affect the performance of the solar panel. Reduced sunlight due to cloudy weather, or blocked sunlight, will negatively affect the solar panel's ability to charge the battery. When installing the solar panel, be mindful of the surrounding structures, trees, and other objects that may cast a show on to the solar panel. Keep in mind that nearby trees may need to be trimmed periodically to maintain proper function of the solar panel and cabinet systems. In ideal conditions, the battery requires 4 hours of direct sunlight for a full charge, which can supply power for approximately 3 days depending on temperature and battery health (or less if powering additional equipment such as multiple cameras, sirens, lights, or speakers). A second solar panel can be added when ideal conditions are frequently interrupted.

If the system receives fewer than 4 hours of sunlight at above-freezing temperatures, a second solar panel may be required. If the system persistently goes offline due to cloud cover, a second solar panel should be installed. To add a 2nd solar panel, a third-party splitter cable will be required for both of the solar panels to be connected.

Note: The connectors on the solar panels are the industry standard MC4 connectors. When 2 solar panels are being installed, they must be connected in parallel to ensure the power controller is not receiving more than 24V. The solar controller is limited to handling 10 amps max. No more than 2 100W solar panels should be connected.

Cabinet System Enclosure Protection

The cabinet systems enclosure provides protection against a wide variety of weather and environmental conditions. A generic description of protection from dust and water is detailed below:

- Dust Protection:
    - Complete protection from dust and other solid particles.
    - Ensures the device inside the enclosure remains dust-free even in dusty environments.
- Water Protection:
    - Suitable for outdoor conditions where it might be exposed to rain or water splashes but not for immersion in water.

Applications for Cabinet Systems:

- Outdoor Installations: Designed for outdoor security systems, cameras, and other electronic devices.
- Industrial Environments: Suitable for industrial applications where equipment might be exposed to dust and water sprays.
- Public Areas: Can be used in public installations such as parking garages, gated communities, and other areas where environmental protection is necessary.

Limitations:

- Not Waterproof: While it provides protection against rain, it is not designed to be sprayed with jet water (such as power washers) or be submerged in water.
- Consideration should be given to Cabinet Systems being installed in areas where heavy snowfall occurs. While snow will not damage the system, snow can cover the solar panel which will degrade the charging ability of the system, and potentially result in an offline status.

The Eagle Eye Cabinet System is designed to provide a reliable solution for outdoor surveillance needs. With options for different configurations and robust protection against environmental hazards, these systems ensure secure and effective monitoring in various locations and conditions. Adhering to the specified operating temperature ranges will ensure the longevity and functionality of Eagle Eye Cabinet System installations.