



## **AUTONOMOUS SECURITY DRONE**

**EMERGENCY POWER SUPPLY FOR OUTDOOR BASE STATION**

### **Project description**

The Beehive system enables autonomous monitoring of large areas and can be seamlessly integrated into already existing infrastructures with security cameras and sensors. In the event of an alert the outdoor base station "Hive" opens and within a very short time the "Bee" drone takes off and flies autonomously directly to the given location on the property to transmit live video footage. With advanced 3D mapping, obstacle detection and geofencing, the drone navigates autonomously within the premises. To ensure a reliable and uninterrupted power supply to the "Hive" base station, Bicker Elektronik had been brought in as a UPS and power supply specialist to develop a customised solution.

### **The challenge**

The Beehive drone system should be able to safely carry out a surveillance flight or reliably return to the base station even in the event of a power failure. The biggest challenge was to find a UPS solution that would provide the required power and at the same time fit into the limited space available in the "Hive" housing. In addition, all components should be designed for operation at low and high outdoor temperatures.

### **Sunflower Labs® Beehive**

The flexible Beehive drone security solution from Sunflower Labs® essentially consists of two main parts: The "Bee" drone has sophisticated technologies for autonomous take-off, flight and landing, as well as high-quality live video recordings. The "Hive" not only houses and charges the drone fully automatically, but is also the **brain of the entire system**, processing and analysing sensor data with embedded AI computing.



Website:  
[sunflower-labs.com](https://sunflower-labs.com)





*“The products we use from Bicker Elektronik have been a great fit for us. Alongside the robust products, the sales and engineering support from the company has been invaluable.”*

**Jakub Stano, Head of Product at Sunflower Labs®**

### **The solution**

During the consultation for the design-in process, a comprehensive analysis was conducted on the power requirements and other criteria to ensure a one-hour backup operation for the base station. Based on these findings, the team of experts from Bicker Elektronik subsequently presented a customised solution: a space-saving and flexibly integrable 24V DC UPS solution with a powerful LiFePO4 high-performance battery pack. The safe and durable energy storage is ideally suited for use under demanding conditions in the temperature range from -20 to +55 °C.

### **Advantages & customer benefits**

“The Beehive system is a drone-in-a-box solution that is compact, easy to deploy and effortless to use. The DC UPS from Bicker Elektronik has proven to be an excellent solution for us to bridge power failures and disturbances. The compact size and seamless integration of this set-and-forget solution fits our requirements perfectly,” emphasises Jakub Stano from Sunflower Labs®. Thanks to the integrated emergency power supply, the base station can be operated in “emergency mode” even in the event of a power failure during a flight. This ensures that the “Bee” can safely return to the “Hive” and land at any time.

### **DC UPS emergency power supply**

Bicker Elektronik relies on lithium iron phosphate technology for its DC UPS solution. The LiFePO4 battery pack impresses with stable and safe battery chemistry, a long service life and more than 6000 full charge and discharge cycles.



**UPSI-2406** | Intelligent DC UPS  
144 W / 24 V 6 A / Open Frame

**BP-LFP1325** | LiFePO4 Battery Pack  
13.2 V / 2.5 Ah / 33 Wh / -20...+55 °C / UN38.3



**More information, images & videos**  
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