

# **FIRE***Bird*

## **Rapid Wildfire Detection System**



**LINDSEY**  
*FireSense*

## Facts to Know About Wildfires Along Boundaries

**10x**

Wildfires started by power lines average ten times larger than other wildfires.<sup>1</sup>

**90%**

90% of all wildfires in the United States occur within 1/2 mile of a road.<sup>2</sup>

**12.6 Million**

U.S. new home construction from 1990 - 2010 resulted in 12.6 million more homes being placed in wildfire vulnerable wildland urban interfaces.<sup>3</sup>

<sup>1</sup>Mitchell, Joseph W; "Power line failures and catastrophic wildfires under extreme weather conditions"; Journal of Engineering Failure Analysis #35, 2013, page 728, Table 1

<sup>2</sup>Peterson, Peter H., "Roads and Wildfires," Pacific Biodiversity Institute, Winthrop, WA, 2007, page 4

<sup>3</sup>"New analyses reveal WUI growth in the U.S.," Northern Research Station, USDA Forest Service, downloaded on 1/15/2021 from <https://www.nrs.fs.fed.us/data/WUI/>



# FIREBird Rapid Wildfire Detection System

## *Innovative Technology for Early Detection*

FIREBird is the first wildfire detection system intended specifically for deployment along high fire risk rights-of-way, such as utility power lines, or wildland urban interface boundaries adjacent to residential developments. Easily mounted on any structure, FIREBird devices support continuous wildfire detection along these high fire risk boundaries when placed at regular intervals.

This unmanned system, delivers automatic notification of detected wildfires to authorized first responders, typically within 2 minutes.



### **Quick Detection**

The FIREBird system is capable of detecting wildfires as far away as 900 feet. Each FIREBird unit delivers wildfire detection over a 60-acre area. When regularly placed along critical boundaries, the system delivers continuous fire detection along that path. The FIREBird system is ideal for use along any property border.

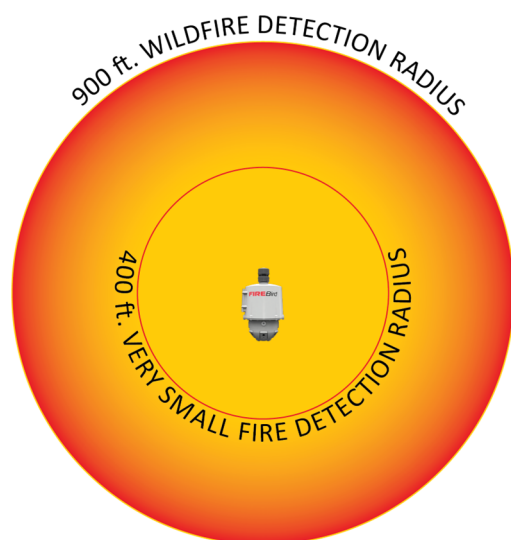
Protection across larger land areas is as simple as deploying additional devices. FIREBird devices are also capable of detecting and reporting on multiple, simultaneous fires within their zone of coverage.

### **Focused Detection**

Many wildfire detection systems and programs watch for wildfires at a distance. Detection occurs only once the fire becomes large enough to sense. High fire severity areas require an additional layer of detection.

FIREBird devices offer the ability for a focused, local approach to wildfire detection. The result is detection of fires when they are smaller and easier to contain with fewer resources, resulting in less financial devastation.

The FIREBird system can be used as a stand alone solution or can be used to compliment other wildfire detection systems.



Each FIREBird device protects a 60-acre area. Detection of wildfires as small as 5 ft. by 5 ft. can be from as far away as 900 ft. Even smaller wildfires can be detected within 400 ft of the device.

## **FIREBird System**

A FIREBird system consists of one or more FIREBird wildfire detection devices and the FireSense web portal.

### **The FIREBird Wildfire Detection Device**

The FIREBird system provides 360-degree wildfire detection by using a combination of wildfire-specific thermal sensors, optical imaging, and advanced computer algorithms.

#### **Autonomous Fire Detection**

Unmanned, autonomous operation ensures fast wildfire detection and notification without the need for a full-time staff to monitor the system.

#### **Fast Fire Detection**

Each FIREBird device offers continuous, 360-degree, monitoring supported by 8 wildfire-specific thermal detectors and 6 optical cameras. As a result, wildfires are typically sensed and reported in less than 2 minutes.

Multiple advanced neural-network algorithms provide local determination of abnormal heat and fire events. These algorithms also minimize the likelihood of false or missed detections.

Each FIREBird device contains a powerful computer. There is no need to transmit data for further processing resulting in the fastest fire detection possible.

#### **Fire Weather Reporting**

Knowledge of local weather conditions is crucial both before and during fire events. The optional weather station gives highly accurate measurements of wind speed, wind direction, ambient temperature and humidity for pinpoint monitoring of weather conditions conducive to wildfires.

#### **Communications**

All FIREBird devices include built-in cellular radios. Optional satellite radios may be added to ensure continuity of alarm and weather data communication regardless of the availability or status of nearby cell towers. Note that cellular communications is required for the FIREBird to send images.

#### **Flexible Power Options**

FIREBird devices are powered by a solar panel or external AC power (included).

An optional built-in battery, specially encased to prevent thermal runaway, delivers days of power in the event of a power outage or dark or smoky skies.

# Tour the FIREBird

## A Fully Self-Contained Wildfire Detector

### Communications

Cellular communications is included with each FIREBird device. Backup satellite communications can be added to ensure transmission of critical alarms and data when cellular communication is not available.

### Lateral View Cameras

When a FIREBird is installed along a utility right-of-way, these two cameras can help utilities determine the condition of the power line at any time.

### Continuous 360° Detection

The overlapping fields of view of the cameras and thermal sensors give continuous fire detection around the device without the need for scanning or panning.

### Weather Station

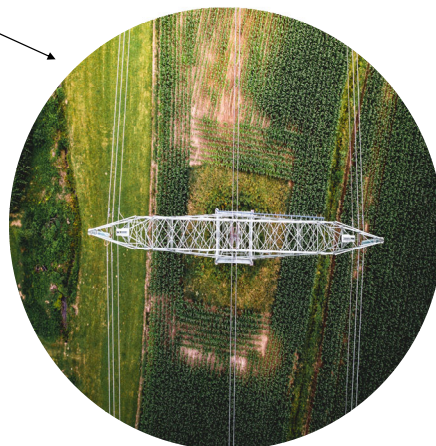
The optional weather station offers wind speed, wind direction, ambient temperature, and humidity information. Weather data is always available even in the absence of a fire event. The accessibility of this data can help to quickly identify local red flag conditions.

### Cameras

Six visible light cameras give visual confirmation of fire events.

### Thermal Sensors

Eight advanced sensors detect the unique thermal signature of wildfires, providing rapid heat event detection. Sophisticated neural network algorithms minimize false alarms.



## The FireSense Web Portal

### A Convenient, Powerful Web Interface for FIREBird Devices

The FireSense web portal is a secure, password protected, cloud-based graphical interface for the collection and viewing of data from FIREBird devices, and for alarm notification management. FireSense data may be easily integrated into existing emergency communication systems.

#### Get a Quick Overview

The Dashboard view demonstrates a status summary of all FIREBird devices.

#### See Where the Problems Are

Auto-zooming maps quickly isolate the areas of concern. Color-coded status indicators allow for rapid fire identification. Images, alarm status, device history, and notification history are all a click away.

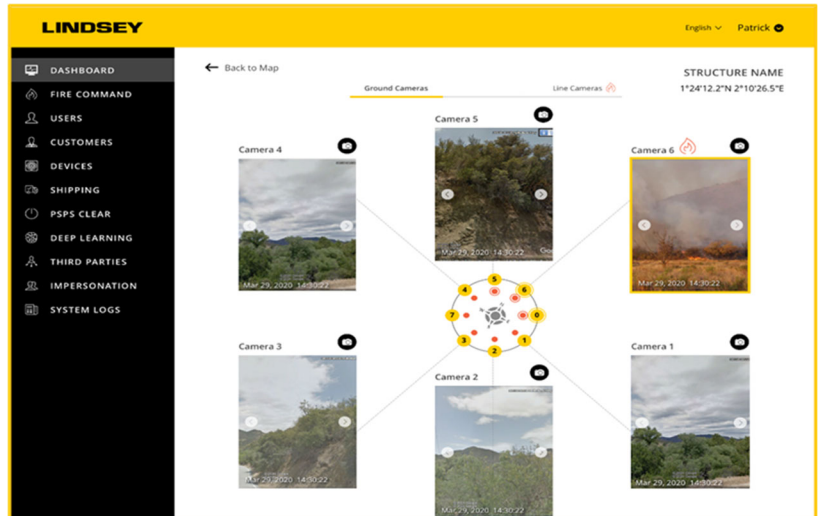
#### Enhance Your View

While in map view, toggle on or off various layers to add weather information, red flag warnings, and locations of existing, named, fires.

#### Organize Your FIREBird Devices

Create FIREBird device groups organized by right-of-way, boundary name, location perimeter, land area, or any other method to enhance your ability to manage alarms.

For utilities, organizing FIREBird devices by feeder or electrical circuit simplifies monitoring the condition of the rights-of-way.



#### Fire Imagery

Once a heat event or fire is detected, the FIREBird captures six overlapping images, providing a 360 degree view of the surrounding area. This allows for quick, visual confirmation by the user and provides valuable visual information to fire fighting staff. Clicking on any image allows for full screen inspection of the image. Users can view images from any camera on the FIREBird device and additional images may be captured as needed.

#### Fire Documentation

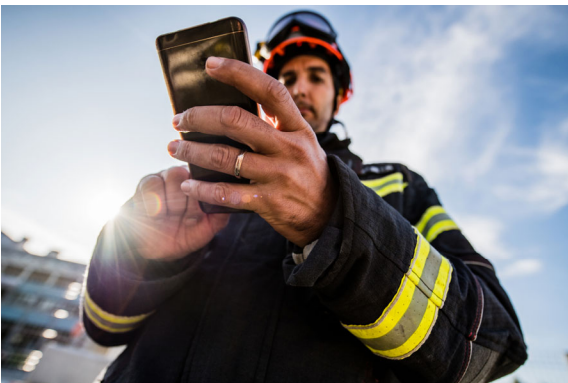
The images captured at the time a wildfire is detected can furnish important documentation regarding the cause of an event.

#### Desktop and Mobile Friendly

Compatible with any browser, the FireSense portal is also mobile friendly, eliminating the need to download a separate application.

#### Control Who Gets Notified

An adaptable notification tool offers control over which person or persons get notified of alarms, for which devices, and whether by text and/or email.



## Support for Utilities

### Public Safety Power Shutoff (PSPS) Assistance

#### Right-of-Way Condition Monitoring

Each FIREBird device can be equipped with two additional cameras that look along the monitored right-of-way. The primary role of these two lateral view cameras is to document the condition of the right-of-way at any time.



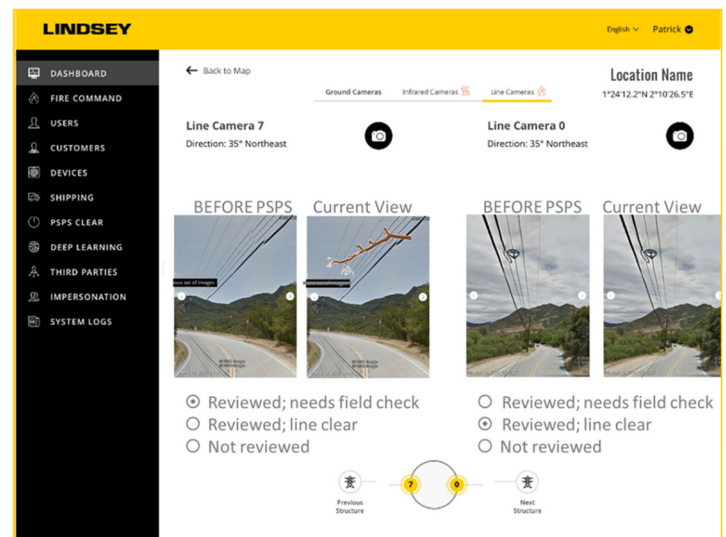
Dedicated cameras provide images in either direction along the protected right-of-way.

#### The PSPS CLEAR Function

The unique “PSPS CLEAR” function is designed specifically for utilities to help assess the physical condition of a de-energized power line.

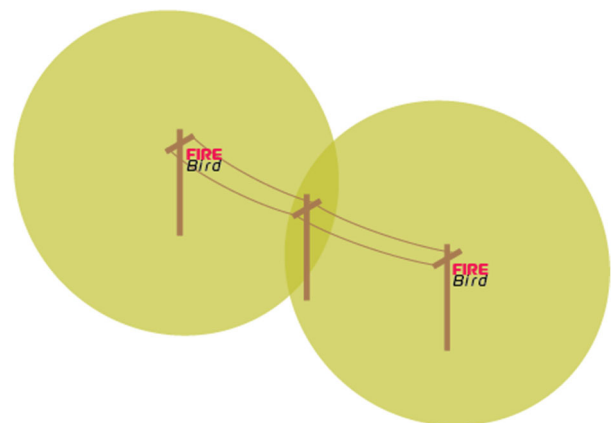
Images from the two lateral view cameras may be captured before a power line is de-energized and before a power line is re-energized. This visual comparison tool helps utility personnel evaluate whether damage has occurred to the line during the PSPS event.

This feature can also be used for comparison of image sets along roadways, pipelines, railroad lines, or for any other asset that follows a path.



#### Advantage of Regular Placement

Placement of FIREBird devices at regular intervals along a utility right-of-way gives a continuous fire detection zone extending hundreds of feet on either side. The lateral view cameras add a practical means of protecting assets, monitoring their condition, and documenting any changes.





## About Lindsey FireSense

Established in a foothill community of Southern California, Lindsey FireSense, is in a high-risk location for wildfires. Our products are developed by a group of engineers and scientists who have decades of experience with sensors, wildfire detection, the utility industry and IoT devices and applications.

Lindsey FireSense focuses on products designed to detect and mitigate damage associated with wildfires.

For more information, visit [www.Lindsey-FireSense.com](http://www.Lindsey-FireSense.com).

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