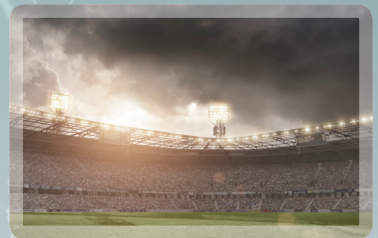
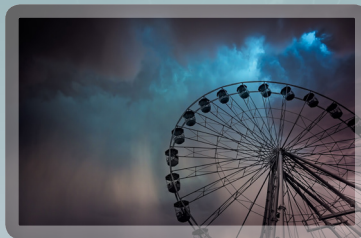


BTD-200 LIGHTNING WARNING SYSTEM

Designed for leisure, sports and outdoor pursuits:
Golf, team sports, university / school sports facilities,
sports stadiums, outdoor leisure and theme parks.



METEOROLOGICAL SENSORS



The BTD-200 lightning warning system is a complete detection and warning system which has been developed from the Biral range of professional aviation grade lightning detection systems. Its proven detection technology reliably detects the presence of all forms of lightning out to a range of 35km (22 miles) from the sensor. Designed to be quickly and easily installed, it comes complete with a universal mains voltage power supply and the essential PC server application Lightning Works for monitoring, warning and data logging of approaching thunderstorms.

Unique Lightning Detection

The BTD-200 makes quasi-electrostatic measurements to avoid the problems of false alarms and mechanical failures associated with the detection of lightning using radio wave and field-mill based sensors. Most importantly, it is able to issue warning of potential overhead lightning before the first strike. Such early warning is not possible using radio based detection. Virtually all commercially available lightning detection systems use the reception of radio waves generated by lightning discharges as the primary detection technique. Whilst providing a sensitive method of detection there are many other sources of these radio waves such as arcs from electrical equipment, vehicle ignition systems and fixed or mobile transmitters, all of which can result in high false alarm rates for these systems. Due to these limitations, most standalone lightning detectors employ secondary measurements such as optical flash detection in an attempt to reduce false alarms and employ complex signal analysis to estimate range. These techniques are only partially effective, giving these older technology lightning detectors a poor reputation due to their high false alarm rate, poor distance accuracy and short working lifetimes.

True Thunderstorm Detection

In many applications the lightning warning system is used to help protect people and equipment from the dangers of a lightning strike by providing advanced warning of a storm's approach. This is all the more important in areas where large numbers of people are outdoors across a wide area enjoying a leisure activity (e.g. a golf course). Detectors which rely on lightning detection alone are only effective if the storm is already producing lightning at some distance before moving closer towards the detector. If the first lightning strike of the storm is overhead then these types of systems give no advanced warning and therefore no protection.

The advanced detection principle of the BTD-200 enables it to monitor the strength of the local electric field and the presence of charged precipitation, both of which are strong indicators of lightning risk. This allows the BTD-200 to provide warnings of the risk of an overhead strike even before any lightning has been produced. This advanced warning can be up to 20 minutes before the lightning begins, giving more than enough time to alert staff, members, teams and the public to the risks of remaining outdoors.

Applications

There are many applications where the ability to reliably warn of the presence of thunderstorms can increase both safety and productivity. The leisure industry must consider and manage the risks posed by thunderstorms to both customers and staff at outdoor events whether they are concerts, theme parks, sports stadia or golf courses. Reliable thunderstorm detection allows these operations to take the appropriate safety precautions in a timely manner and only when necessary. Once the storm threat has passed, normal operations can be resumed quickly and safely, so protecting both life and revenues.

The System

The BTD-200 lightning warning system is a modular system which is designed to operate out-of-the-box, but is also expandable as requirements grow or change. The essential system comprises of a lightning detector which is placed outside, whilst a PC located indoors runs the supplied

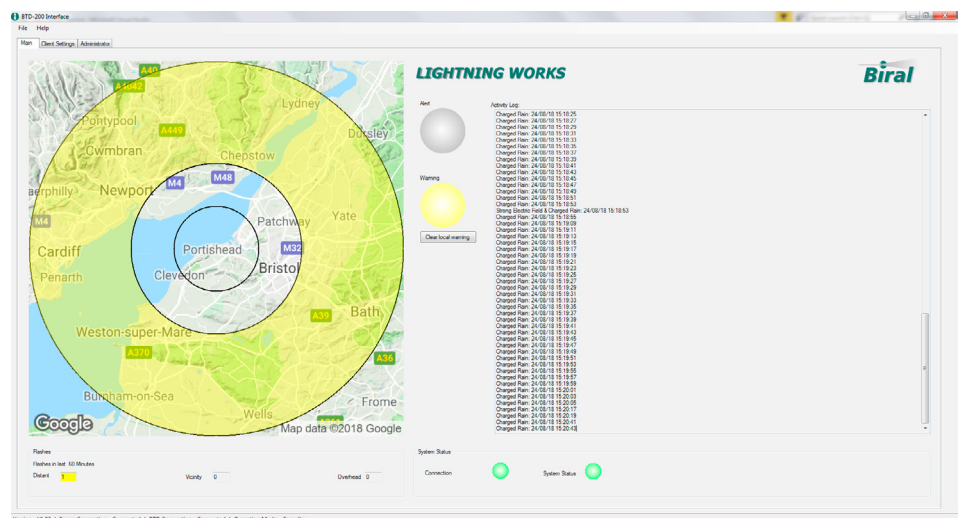
Lightning Works software. The system includes a universal mains power supply and (optionally) the cabling to connect to the power and the host PC.

The BTD-200 can be connected directly to an appropriately sized warning sounder if required.

Lightning Works - Graphical Alarm Software

Included with the BTD-200 lightning warning system is the control and display software - **Lightning Works**. This comprehensive server software package allows the administrator to configure the BTD-200 to meet their warning needs via user adjustable warning zones. It displays the lightning distance in real-time on a map of the local area whilst displaying the current lightning alarm level. It offers the following features:

- Multi-user capability, with up to 5 simultaneous users (one administrator, 4 viewing stations)
- Map overlay showing lightning distance warning zones (user adjustable)
- Current lightning warning state (shown in real-time)
- Sensor health status display (ensures system is fully operational)
- System configuration window
- Automatic data logging of lightning events (for later data retrieval and review)



Key Features & Benefits

- ✓ Complete, out-of-the-box warning system with minimal installation
- ✓ Fully automatic alarm triggering
- ✓ Warns of the most dangerous (overhead) lightning risk even before the first lightning strike
- ✓ Advanced, automatic self-test to ensure system operation
- ✓ Accurate 35km (22miles) detection range
- ✓ Detects cloud-to-ground, intra-cloud and cloud-to-cloud lightning
- ✓ Detects charged precipitation and strong atmospheric electric fields
- ✓ Compliance with EN50536:2011+/A1:2012 for a Class 1 detector
- ✓ Performs in accordance with IEC62793 for a Class A detector



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