



BTD-200 Lightning Warning System designed for land applications (sporting and leisure facilities, industrial sites, agriculture, infrastructures, etc.)

Datasheet

BTD-200 Lightning Warning System

The BTD-200 lightning warning system is a complete detection and warning system. 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.

Application areas

The BTD-200 has been specifically designed for land applications, such as sporting and leisure facilities, industrial sites, agriculture, infrastructures, etc. However, there are many applications where the ability to reliably warn of the presence of thunderstorms can increase both safety and productivity.

Features and 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
- Supplied with Lightning Works server software
- 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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Unique lightning detection

When a lightning discharge occurs there is a significant transfer of electric charge which causes a disturbance in the atmospheric electric field detectable to a distance of more than a hundred kilometres. The low frequency (<50 Hz) disturbance is detected by the BTD-200 antenna and the signal is processed to both detect and range lightning discharges. Due to the low frequency nature of the lightning discharge signal, the BTD-200 filters out the higher frequency electromagnetic radio waves which confuse other sensors. 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. As virtually no manmade or natural source can disturb the Earth's electric field in same way as a lightning discharge, the BTD-200 has an almost zero false alarm rate.

Most importantly, the BTD-200 is able to issue warning of potential overhead lightning before the first strike. Such early warning is not possible using radio based detection systems.

Measurement

- Lightning detection: cloud-to-cloud, cloud-to-ground and intra- cloud lightning discharges
- Thunderstorm activity for advanced warning of lightning: charged precipitation and strong electric field
- Lightning detection range: 35km (22 miles)
- Range resolution: 1km
- Detection efficiency: 95% for a single lightning flash, 99% for storm with 2 lightning flashes, 99.9% for storm with 3 lightning flashes (for flashes within 35km)
- False alarm rate: <2%
- Maximum flash rate: 120 per minute
- Maximum update rate: 2 seconds

Outputs

- User computer or base control box: wired serial connection (RS422)
 - Wide area sounder: wired serial connection (RS485)
 - Three relays with volt free contacts:
 - Alert state
 - Warning state
 - Self-test
- All relays 16Vac 35VDC 5A
- Connection method: screw terminals

Power requirements

- Supply voltage: 9 to 30Vdc, 110/115 or 230/240Vac
- Power consumption: less than 5W

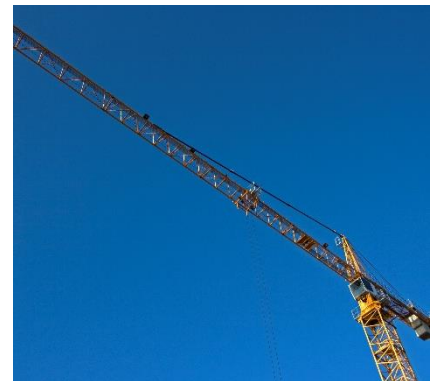
Examples application areas



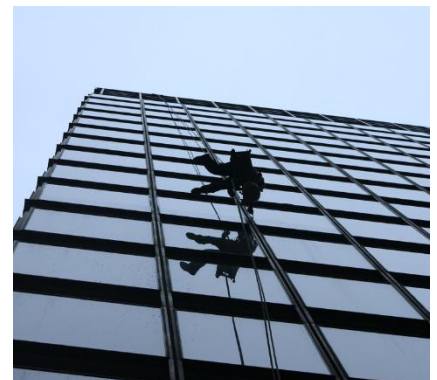
Golf courses & other outdoor sport facilities



Amusement parks and fairgrounds



Crane operations



Window washing

Environmental

- Operating temperature: -20°C to +50°C
- Relative humidity: 0 – 100%
- Protection rating: IP66
- Wind speed: 60m/s
- Altitude: -200m to 2,000m (-656ft to 6,561ft)
- Shock and vibration: land based fixed installation

Certification & compliance

- CE Certified
- EMC: EN61326-1:2013 Industrial immunity, domestic emissions
- RoHS and WEEE compliant
- Compliance with EN50536:2011+A1:2012 for a class 1 detector
- Performs in accordance with IEC 62793 for a class A detector

Physical

- Material: stainless steel and epoxy powder paint coated aluminium
- Colour: silver and white
- Weight (sensor only): 4.3kg (9.5lbs)
- Height: 675mm (26.6")

Maintenance

- Self-test capability: standard feature
- Visual inspection: 6 to 12 months

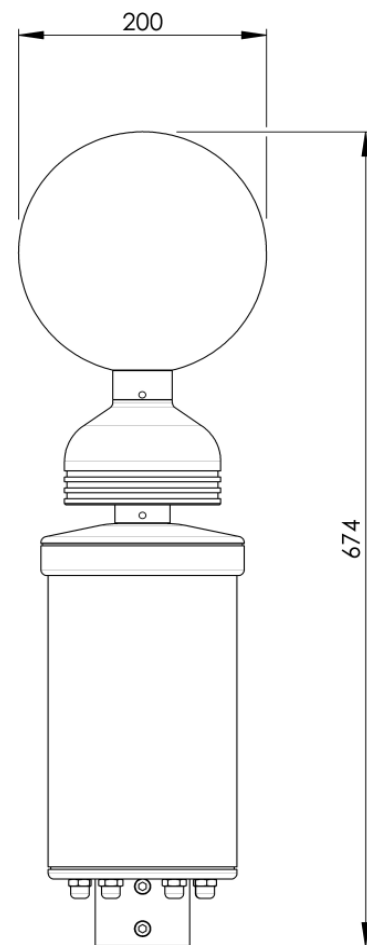
Included with sensor

The sensor is delivered in sturdy recyclable packaging with:

- Universal input mains power supply adaptor
- Optically isolated serial RS422 to USB adapter
- Control and display software on USB drive
- User manual

Lightning Works software

- Multi-user capability. Maximum of 5 simultaneous users
- Map overlay showing lightning distance bands
- Warning state icons
- Sensor health status display
- System configuration window
- Warning state cancellation buttons
- Automatic data logging
- Export of logged data in CSV format



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