Lightning Warning System

BTD-200



INTRODUCTION

The **BTD-200 is a self-contained lightning warning** system developed from Senseca's professional aviation-grade lightning detection technology.
It is designed for sporting events, outdoor pursuits, industrial and meteorological applications where reliable and early warning of thunderstorms is critical.
Using a unique quasi-electrostatic principle, the sensor detects all forms of lightning activity out to 35 km (22 miles), while advanced signal processing delivers a very low false alarm rate and accurate ranging. It can warn of dangerous overhead lightning risk even before the first strike occurs.
Supplied as a complete "out-of-the-box" solution with universal power supply and Lightning Works server software, the BTD-200 is quick to install and provides automatic monitoring, warning and data logging of approaching thunderstorms.

FEATURES

Standalone lightning warning solution

Complete, self-contained system including sensor, power supply and Lightning Works server software for monitoring, alarms and data logging.

Proven detection technology

Quasi-electrostatic detection, derived from professional aviation systems, reliably detects lightning with high efficiency and very low false alarm rates.

Early warning of overhead risk

Detects charged precipitation and strong atmospheric electric fields, providing advance warning of overhead lightning risk before the first discharge.

Accurate 35 km range

Detects lightning up to 35 km (22 miles) with 1 km range resolution, giving a clear picture of storm approach and intensity.

Flexible interfacing & standalone alarms

Fully automatic alarm outputs and built-in self-test ensure the system is operational without constant supervision.

Standards compliant

Complies with EN50536:2011+A1:2012 for a Class 1 detector and performs in accordance with IEC 62793 for a Class A detector.

CONFIGURATION & MEASUREMENT

Detection principle

When lightning occurs, large charges are transferred and create a low-frequency (<50 Hz) disturbance in the atmospheric electric field that can be sensed over distances greater than 100 km. The BTD-200 antenna measures these low-frequency disturbances and filters out higher-frequency radio noise that causes false alarms in traditional radio-based detectors.

Measurement performance

The system detects cloud-to-cloud, cloud-to-ground and intra-cloud lightning discharges, classifying storm activity into range bands up to 35 km (22 miles). Detection efficiency is typically 95% for a single flash, rising to 99–99.9% for storms with multiple flashes within 35 km. The false alarm rate is less than 2%, with a maximum flash rate of 120 per minute and an update interval as fast as 2 seconds.

Outputs and interfaces

The BTD-200 connects to a user PC via a wired RS422 serial link. Three volt-free relays (self-test, warning state and alert state) provide direct alarm outputs to local indicators or control systems.

Power and environmental configuration

The sensor operates from a 9–30 VDC supply (universal AC-DC adaptor included) with power consumption below 5 W. It is housed in stainless steel and coated aluminium, rated IP66, and is designed to operate from −20 °C to +50 °C in 0–100% relative humidity, making it suitable for demanding outdoor environments.

- **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**

Authorized Distributor:
LOKATOR-K OOD
Residential Complex Gotse Delchev, Block 258, Entrance A
Sofia 1404, Tel.: + 359 2 9621881; + 359 2 9622138
Mobile: 0888 64 11 68 E-mail: office@lokatork.com **www.lokatork.com**

General specifications

OUTPUTS

User computer	Wired serial connection (RS422)
Relays	3 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 30 Vdc, universal mains power adaptor included
Power consumption	Less than 5W

ENVIRONMENTAL

Operating temperature	-20 °C to +50 °C
Relative humidity	0 – 100% RH
Protection rating	IP66
Wind speed	60 m/s
Shock and vibration	Land based fixed installation

PHYSICAL

Material	Stainless steel and epoxy powder coated aluminium
Weight	4.3 kg (9.5 lbs) sensor only
Height	675 mm (26.6")
Diameter	200 mm (7.9")
Warranty	1 year

CERTIFICATION & COMPLIANCE

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

Ordering codes

BTD200	Lightning warning system

Accessories – Optional

BA.005 / 06 / 07	Power Cable, available in 20, 50 or 100 m
BA.009 / 10 / 11	Data Cable, available in 20, 50 or 100 m
BA.017	Mounting Pole, Flange base
BA.020 /21/22	Earthing Kit, available in 2, 5 or 10 m
BA.023	Wall Mounting Bracket
BA.024	Direction Finder
BA.026	Lightning Works Messenger Program
BA.027	Field Test Unit
BA.000	Serial Communications Interface Unit
BTD.WTY200	1 Year Extended Warranty

The sensor is delivered in sturdy recyclable packaging with universal power adaptor (90/264 Vac to 24 Vdc), optically isolated serial RS422 to USB adaptor, control and display software on USB drive, user manual.

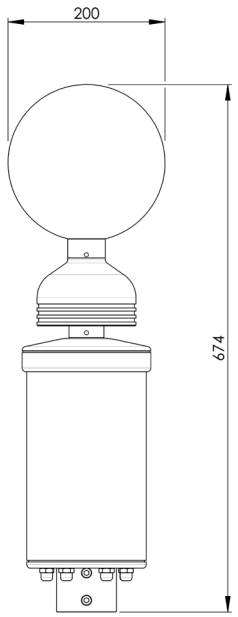
Measurement specifications

Detects	Cloud-to-Cloud, cloud-to-ground and intracloud lightning discharges
Thunderstorm activity for advanced warning of lightning	Charged precipitation and strong electric field
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 35 km
Range	35 km (22 miles)
Range Resolution	1 km
False alarm rate	<2%
Maximum flash rate	120 per minute
Maximum update rate	2 seconds

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

Dimensions



DOC101627.04C - vs1.2

Senseca UK Ltd
Unit 8, Harbour Road Trading Estate - Portishead
Bristol - UK - BS20 7BL
www.senseca.com - info.bristol@senseca.com