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Thunderstorm Local Lightning Sensor TSS928

Early, precise lightning detection to keep airport operations running smoothly

Accurate, local lightning detection is a critical aspect of airport operations. Advanced awareness of potential lightning threats allow you to assess risks quickly, circulate advance warnings in a timely manner, initiate safety procedures more efficiently, and isolate airport equipment with full confidence.

The Thunderstorm Local Lightning Sensor TSS928 delivers the superior performance that aviation operations require from local area lightning tracking. It meets ASOS requirements and accurately reports the range and direction of cloud-to-ground lightning and provides cloud lightning counts in real time — even in the most extreme weather conditions.

The TSS928 is built on sensor technology and patented lightning algorithms that provide the most precise detection of any stand-alone lightning sensor available in the world today, and it can be easily integrated with automated surface weather observations to streamline critical operational and safety decisions.

Key benefits

Threat warnings with pinpoint accuracy

Boasting a 30-mile "best accuracy range," the TSS928 detects and differentiates between cloud, intracloud, and cloud-to-ground lightning — reporting on direction and distance, as well as cloud lightning discharges.

Unrivaled accuracy and detection efficiency

TSS928 sensors detect cloud and cloud-to-ground lightning within 56km (35mi), as well as optical, magnetic, and electrostatic pulses from lightning events with zero false alarms. They have a detection efficiency of 98% for thunderstorms within 19km (12mi) that have three or more cloud-to-ground discharges and about 70% for cloud-to-ground flashes within 18.5km (11.5mi).

Real-time data for down-to-the-minute decisions

For storms developing overhead, receive warnings of CG lightning in advance to identify the most at-risk areas and determine the best ways to maintain safe, efficient, and continuous airport operations — always.

Rapid, accurate alerting

TImely, detailed detection data will help you make the right call regarding potential storm threats. Plus, the TSS928's patented optical signal processing and proprietary optical-coincidence technology prevents false alarms, which helps eliminate unnecessary downtime while keeping ground crews, outdoor equipment, airplanes, and passengers safe.

TSS928 at a glance

Applications for airports

- Better controlled airport facilities
- Safer fueling operations
- More secure cargo loading and unloading
- Safer passenger boarding and deplaning
- Shorter taxiing operations

Key features

Industry-leading, ultramodern detection sensors

The patented optical signal processing and proprietary optical-coincidence technology prevents false alarms. The TSS928's modular design allows easier field service and on-site maintenance, and its self-diagnostics features consistently check sensor function status.

Critical lightning data at your fingertips

- Warning of cloud-to-ground lightning
- Weather station integration
- Detect + differentiate between cloud-to-ground and cloud lightning discharges
- Cloud and cloud-to-ground lightning discharge range estimates within 56km (~35mi)
- CG lightning alerts
- CG lightning ranging and direction
- Zero false alarms aids cloud to cloud detection
- Lightning direction provided by MDF
- Processing B and E field waveforms

Sensor specifications	
Mean bearing accuracy	+/- 15 degrees, 99% of the time +/- 1 compass octant, 99.9% of the time +/- 1 degree on test pulse
Bearing resolution	1 second increments, 0 to 360 degrees
Detection efficiency (thunderstorms)	100% of thunderstorms within 19km (12mi) with 3 or more cloud-to-ground discharges
Detection efficiency (CG flashes)	Approximately 90% for flashes within 19km (12mi)
False lightning reports	None. False lightning reports do not occur for properly installed and maintained sensors.
Thunderstorm range resolution	0 to .8, .9 to 11.5, 11.6 to 34.5 miles
Sensor output	Serial ASCII alphanumeric message describing local thunderstorm conditions

Why Vaisala?

The industry's most dependable thunderstorm tracking technology

Vaisala is the most experienced aviation weather company in the world, with a suite of solutions built on more than 45 years of aviation experience. It is trusted in more than 160 countries, from the Nordics to Africa, the Americas, and Asia.

Aviation customers can choose the most suitable solution for their unique situation: from a stand-alone, on-premises local-area lightning detection sensor to a network-based solution such as Thunderstorm Manager.

Support and services you can count on

Look to Vaisala for dependable support, project capabilities, and training so you can get the most from your system. With decades of experience providing the best technologies and the finest support, Vaisala's philosophy of partnership is unmatched in the industry.

Trusted aviation weather from cloud to ground

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