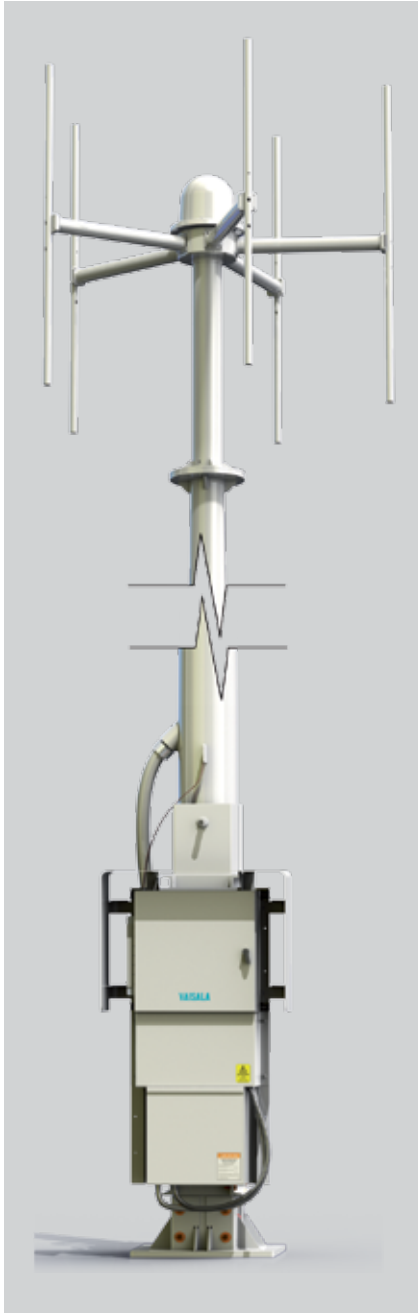


Vaisala Thunderstorm Total Lightning Sensor TLS200



Total Lightning Sensor TLS200 combines VHF interferometry with LF magnetic direction finding and time-of-arrival technologies for the highest level of total lightning mapping detection capabilities with calibrated lightning parameters.

Digital Total Lightning Mapping Technology

The TLS200 is the latest and most advanced technology for total lightning detection. The TLS200 utilizes the Sigmet® digital signal processor which introduces powerful electronics improving speed and capability for lightning detection using very high frequency (VHF) interferometry. The TLS200 also has the capability to provide a combined VHF and low frequency (LF) product. The combined VHF and LF sensor will introduce a true picture of total lightning using the renowned Vaisala LF methodology for accurate and validated cloud to ground (CG) events and the VHF spectrum to best detect the small horizontal pulses emitted in cloud lightning.

Severe Weather Management, Improved Warnings and More Efficient Operations Using Total Lightning Mapping

TLS200 can provide greater than 90% detection efficiency of IC and CG events in a thunderstorm. Not only does TLS200 detect the origination point of an IC event, it maps the full horizontal and spatial extents of the IC lightning. This provides a clear picture of the full electrification

Features / Benefits

- Innovative combined VHF + LF total lightning sensors for the true picture of total lightning.
- Scientifically proven and reliable IC and CG classification using both LF and VHF power spectrums appropriately.
- Detects more lightning than any other product with mapping of the horizontal cloud events providing the most information about a thunderstorm.
- Over 50% more thunderstorm information provided as compared to other LF and HF cloud detection technologies.
- Early identification and advanced warning of convective initiation and first CG stroke.
- Easier site selection and longer detection distance due to 6 MHz equivalent bandwidth and Sigmet® RVP9 digital signal processing and signal to noise ratio improvements.
- Lower cost total lightning solution.
- Improved and cost effective network design with VHF only options.
- New data buffering feature to save lightning information when communications are down.
- 4 hours of uninterrupted power supply (UPS) in case of loss of power to site.
- Easy maintenance and installation with a tilt mast design and no guy wires.
- Patented location algorithms.

of thunderstorm including the anvil and the stratiform regions. Detecting high levels of IC lightning is critical for the advanced warning of severe weather threats such as tornadoes, microbursts and first CG lightning strikes.

Total lightning mapping provides the information to improve warnings and situational awareness. This can yield to improved operational efficiency with less downtime and fewer false alarms all without jeopardizing safety.

Applications include:

- Aviation and Airports
- Meteorology research
- Climatology research
- Wind Energy and Power Utilities
- Telecommunications
- Forestry

Specifications

Synchronization

Source GPS receiver
Accuracy +/-50 nanoseconds to UTC

Operational Reliability

Mean time between failures (MTBF) >30,000 hours
Mean time to repair (MTTR) <30 minutes

Mounting

10 m ground mount with concrete pads for mast
5 m roof mount option
2 m tower mount option
SAFIR and LS8000 upgrade kits

Environmental Conditions

Temperature	-40 °C to +50 °C
Relative humidity	0 to 100 % condensing
Wind speed	0-260 km/h
Altitude	up to 5500 meters*
Hail	5.0 cm in diameter
Ice	1.0 cm
Rain	8 cm/h at wind speed 65 km/h

*Above 3000 meters, special conditions apply.

Communication Interfaces

Asynchronous RS-232 at 38,400 bps minimum (data only)
Ethernet (recommended for full functionality)

Power Requirements

100-120 VAC, 6.0 A max., 50-60 Hz
200-240 VAC, 3.6 A max., 50-60 Hz

Operational Specifications

- Lightning Type Total cloud discharges and cloud-to-ground (CG) flashes and strokes
- Network Detection Efficiency >90 % for cloud and CG
- Network Median Location Accuracy 1-2 km (1000-2000 m) cloud discharge; 250 meters or better for CG stroke
- Nominal Baseline Between Sensors 20 to 180 km
- VHF Band 110-118 MHz
- LF Band 1 kHz-350 kHz
- Performance Monitoring; Complete manual and automatic system calibration and self-test
- Remote Configuration; Operational parameters are remotely configurable
- IPX4 rating for the enclosure