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Vaisala Total Lightning Processor™, TLP100™ and TLP200™ Series on Linux®

The TLP100™ Series processes data from Vaisala low frequency (LF) types of sensors which yield lightning location solutions for greater than 90% of Cloud-to-Ground (CG) and 30% of Cloud lightning flashes.

The TLP200™ Series processes both LF and very high frequency (VHF) signals yielding Total Lightning; greater than 90% of both CG and Cloud lightning flashes.

Extensive Improvements in Lightning Location Processing

The revolutionary technology of Vaisala's Total Lightning Processor™ allows for an expandable processor that meets various market needs. TLP™ includes licenses for system and sensor performance monitoring, network performance mapping and dynamic detection efficiency and location accuracy projections. Each of these features assists in more efficient network operations and stabilized performance.

The TLP™ adds Vaisala's latest patented location algorithm, terrain and propagation correction services which significantly improve the network median location accuracy to 250 meters or better. When TLP™ is combined with Vaisala's newest sensor technology; the location accuracy can be improved even further, approaching 150 meters.

User-Friendly, Web-based Operation

The TLP™ is available now on a Linux® operating system for added flexibility and lower ownership costs. The TLP™ introduces a web-based interface for improved monitoring tools and applications to best meet Meteorology and Weather Critical market needs.

Features / Benefits

- Continuously monitors remote sensor performance and communication status:
  - Allows sensor owners to validate that the sensor is operational and functioning to specification(s).
- Includes Vaisala's patented location algorithm with propagation correction service:
  - Yields improved location accuracy to 250 meters or better
- User-Friendly, web-based interface with graphical tools for sensorqa and networkqa data:
  - Saves valuable time and effort by operators to analyze sensor and network performance resulting in improved overall network performance.
- Dynamically monitors network location accuracy (LA) and detection efficiency (DE):
  - Gives accurate picture of network performance at any given time.
- Includes Zabbix monitoring tools:
  - Allows for customized pinging services to notify operators of unfavorable network operating conditions resulting in improved overall network performance.
- Improved archive management tools:
  - Allows for configurable file size *.iso image bins that can be burned to CDs/DVDs.

Technical Data

Fully Supported Sensors

TLP100™ Series	Vaisala LS7000, LS7001
TLP200™ Series	Vaisala LS8000

Compatible But Unsupported Sensors

TLP100™ Series	Vaisala LPATS-III, LPATS-IV, IMPACT, IMPACT-ES, IMPACT-ESP
TLP200™ Series	Vaisala SAFIR 3000-3, LDAR II

Capacity Up to 512 Sensors

Up to 512 for LF only, 256 for LF + VHF data

Supported Communication Interface

TCP/IP
Asynchronous RS-232 (optional)

Supported Web Browser Interface

Mozilla Firefox 3.0 (recommended), 2.0 (supported)
Internet Explorer 7

Certified Hardware

DELL™ POWEREDGE™ T300, Desktop Server*
DELL™ POWEREDGE™ R300, Rack Mount Server*

Certified Hardware Requirements

4GB of RAM
Dual Core x86_64 compatible CPU
2 (1)TB SATA II disk, RAID 1
2 x NIC ports (100/1000 Mbps)
4 USB 2.0 ports
1280x1024 certified video adapter and monitor
DVD+-RW Burner
Graphics card with hardware accelerated drivers compatible with RHEL 5.3 (512MB RAM, PCI Express Interface). ATI Radeon HD 4350 GPU (recommended)
Red Hat Enterprise Linux® (RHEL) 5.3, 64 bit edition
RHEL 5.3 compatible modem

Environmental Specifications*

The hardware must be in a climate-controlled environment.
The environmental specifications are equal to the HW specifications by default. The following specifications are subject to change without notice based on hardware availability.*

Operating Temperature	10 °C to 35 °C (50 °F to 95 °F)
Storage Temperature	-40 °C to 65 °C (-40 °F to 149 °F)
Operating Relative Humidity	20 % to 80 % non-condensing (non-condensing twmax=29C)
Storage Relative Humidity	5 % to 95 % non-condensing (twmax=38C)
Operating Altitude	-16 to 3,048 m (-50 ft to 10,000 ft)
Storage Altitude	-16 m to 10,600 m (-50 ft to 35,000 ft)

Lightning Detection parameters

CLOUD DISCHARGES and CLOUD-TO-GROUND STROKES
Date and Time to 100 nanosecond resolution
Latitude and Altitude
Number of sensors used in location solution
Position confidence ellipse (chi-square)
Degrees of freedom when optimizing the solution
Semi-major axis of the 50 % positional confidence ellipse (km)
Semi-minor axis of the 50 % positional confidence ellipse (km)
Eccentricity of the positional confidence ellipse
Estimated Rise Time (microseconds)
Estimated Peak-to-Zero Time (microseconds)
Estimated Maximum Rate-of-Rise (kA/microsecond)

CLOUD TO GROUND STROKES (only)
Flash multiplicity (number of return strokes)
Polarity
Estimated Peak Current (kA)

Graphical Tools

Sensorqa and networkqa graphs
- Time Deviation, 95th percentile
- Angle Deviation, 95th percentile
- Delay

Performance Mapping Tools

Sensor Map	Avg. Positive Signal
Lightning Counts	Avg. Negative Signal
% Positive	Avg. Error Ellipse SMA
% Optimized	Avg. CHI Square Value
% Cloud	Avg. Sensor Count
Lightning Density	

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For more information, visit www.vaisala.com or contact us at sales@vaisala.com

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