

Vaisala Thunderstorm Warning System TWX1200



Automated lightning threat identification and warning
for airports and lightning-sensitive operations

Proactive Lightning Risk Management.

Operations and safety managers rely on Vaisala Thunderstorm Warning System TWX1200 to minimize inconsistent and subjective decisions about lightning, to support safety goals, and to improve operational efficiency.



Vaisala Thunderstorm Warning System TWX1200 tracks lightning and monitors overhead lightning potential and automatically sends lightning warnings and all clears to remote alarm displays.

Lightning is a Significant Risk to People and Property

The demand for 24/7 outdoor activities – often combined with close proximity to hazardous and explosive materials – makes airports, munitions depots, mining and blasting operations, and refineries among those working environments that are most vulnerable to lightning hazards.

Operations and safety managers use Thunderstorm Warning System TWX1200 for objective, up-to-the-minute lightning tracking and automated lightning warnings.

Fast, accurate and automated identification and warning of lightning threats enables operations and safety managers to execute proactive lightning risk management and support lightning warning programs that are needed to improve safety, productivity, and equipment protection.

Factors of Success: Accuracy, Reliability, and Automation

Effective lightning warning programs depend on an accurate, reliable, and automated lightning warning systems.

TWX1200 uses lightning information from Vaisala's scientifically validated lightning detection networks and on-site electric field mills. The TWX1200 lightning data processor analyzes all lightning data to automatically determine threats in up to 10 warning areas. TWX1200 sends lightning warnings and all clears throughout the alarm system and to relay contacts to control other equipment.

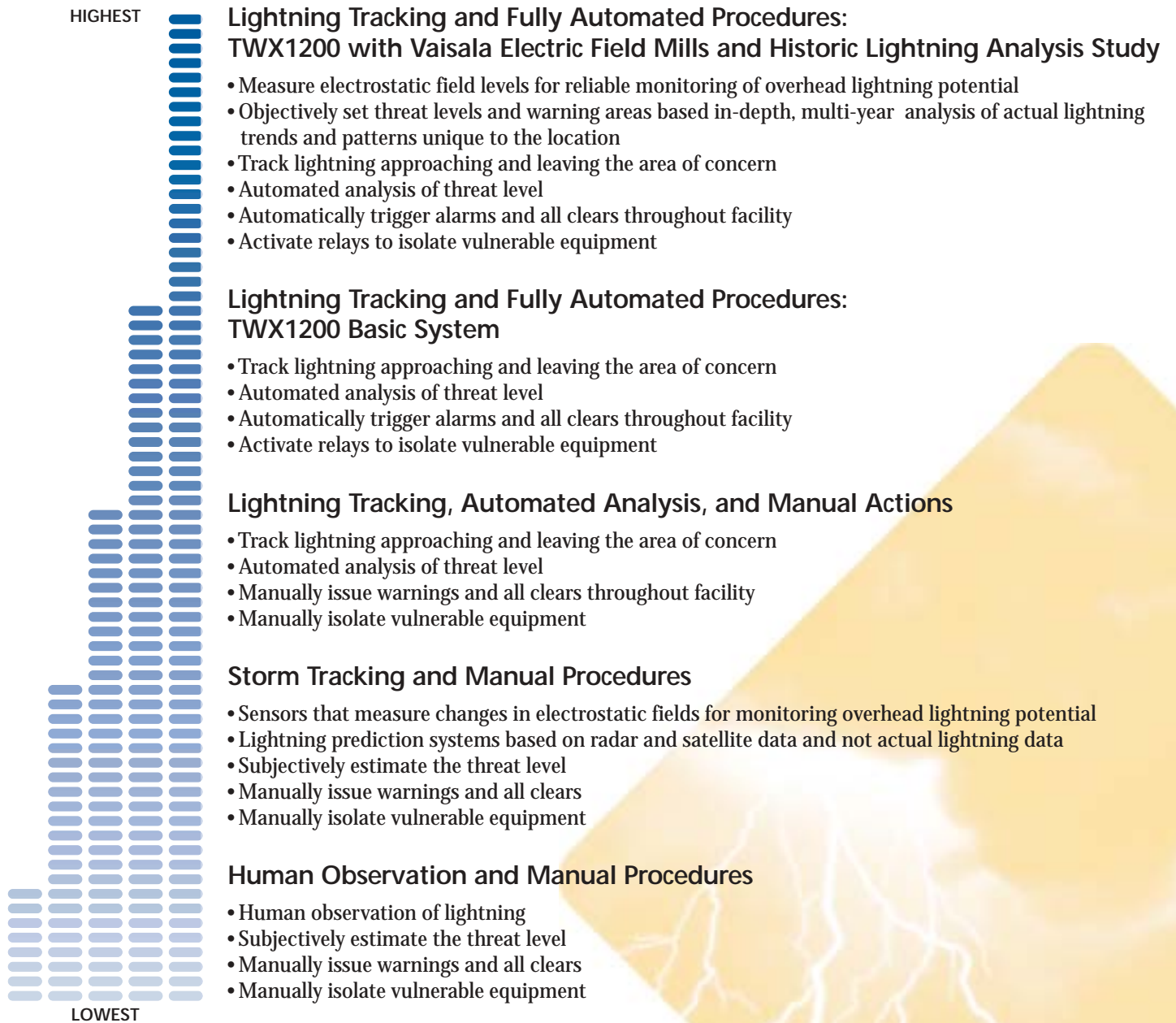
Users can customize TWX1200 settings to adapt to local weather patterns and operational goals. These settings are most objective when based on a multi-year statistical analysis of lightning trends and activity in the area of concern. (Historic analysis available in U.S. and Canada)



TWX1200 Advantages

- Automates lightning threat identification, warnings, and clears to minimize inconsistent and subjective decisions of when to suspend and resume operations
- Objectively supports managers responsible for personnel safety
- Logically integrates atmospheric potential from on-site Vaisala Electric Field Mills with lightning data from a network of off-site lightning sensors
- Configuration and settings are adaptable to local weather patterns and the operation's safety and productivity goals
- Multi-year historic lightning analysis of the facility is available as an objective basis for customizing settings (Study available in the U.S. and Canada)

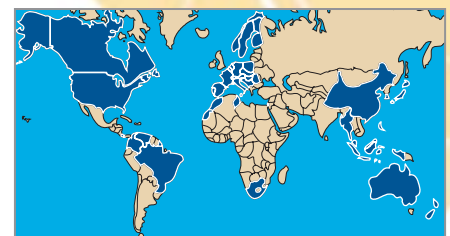
Lightning Warning System Rating Index.



Setting the Standard for Accuracy and Reliability

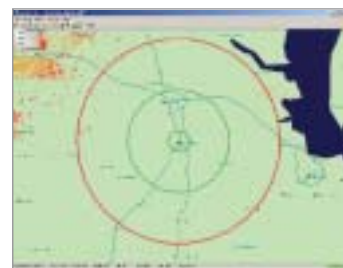
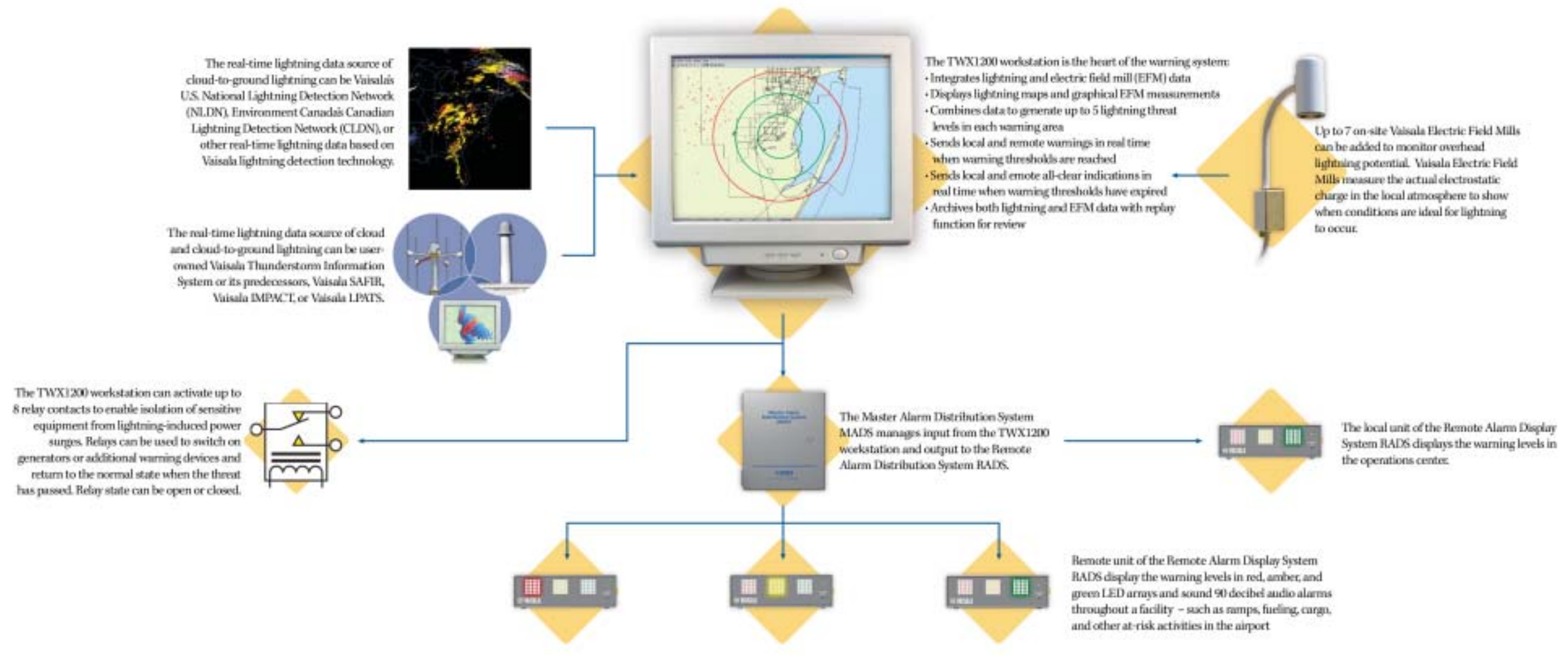
Customers worldwide rely on Vaisala's recognized expertise in lightning systems to deliver the highest standards of accuracy and reliability in lightning detection technology, central processing, application software, and customer support. Vaisala's three decades of pioneering leadership is affirmed by its current worldwide customer base, its

diverse portfolio of lightning detection technologies, and its full suite of processing and application software. Vaisala supports its lightning products and services with training, service, warranty, and spare parts programs that can be tailored to meet each customer's needs.



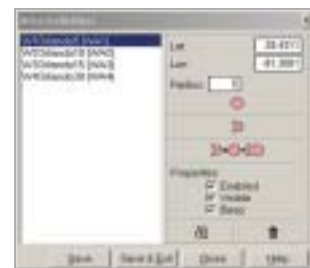
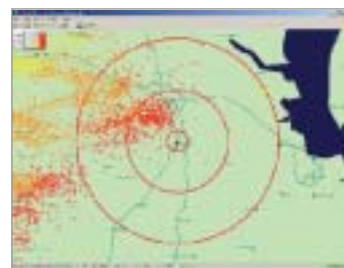
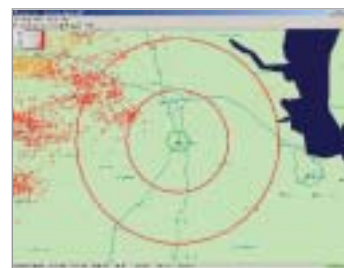
Lightning information needs are served by Vaisala lightning detection networks in more than 40 countries.

Vaisala Thunderstorm Warning System TWX1200: How it works



Lightning Tracking

When lightning enters a pre-defined warning area, the warning area is highlighted. The user can define how each warning area is highlighted in its normal and alarm states. The lightning locations are shown as + or - for identifying positive or negative polarity of the lightning and are color-coded in time intervals. Color coding can be customized. System settings are password protected, allowing only authorized users to modify the settings.



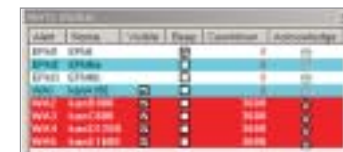
Defining Warning Areas

Up to 10 warnings areas can be defined the user. An area may be a radius or an irregular shape around a specified location. Warning area settings are password protected for controlling user access.



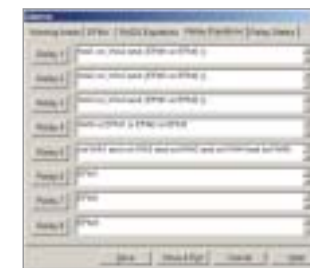
Defining Alarms

RADS can display up to 5 threat levels: green, green/amber, amber, amber/red, and red. The authorized user defines the threat level displayed by specifying warning area and/or the minimum thresholds of electric field mill measurements.



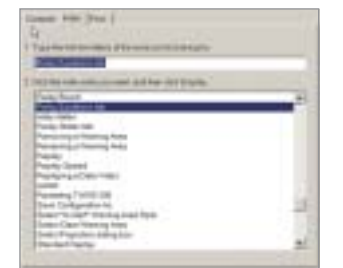
Defining Alarm Alerts

Warning areas and electric field mills alarms can be set by the authorized user for visible and audible alarms and to require acknowledgement of alerts by the workstation operator.



Defining Relays

Up to 8 relay contacts can be defined for activation. Normal relay state may be opened or closed. The authorized user defines the relays by specifying warning area and/or the minimum thresholds of electric field mill measurements.



Help File

Help file provides instant access to instructions on operating TWX1200 for all levels of operators.

Technical Information.

TWX1200 Equipment and Interfaces

Network Lightning Data Source

NLDN®, CLDN, user-owned or other real-time lightning data based on Vaisala lightning detection sensor technology
Network data communications via leased line modem or Ethernet
Processor

Vaisala TWX1200 workstation

Local Sensors

2 to 7 Vaisala Electric Field Mills
Sensor communications via RS-232 with leased-line modem or RS-422

Alarm Distribution

Master Alarm Distribution System MADS
Device Server via Ethernet

Threat Display

Remote Alarm Display System RADS

TWX1200 Workstation Specifications

Processor Pentium®4 (minimum)

Operating System Windows 2000 (minimum)

Subsystem

Master Alarm Distribution System MADS or Broadcast Device Server over LAN

Remote Alarm Distribution System RADS units

Threat condition/warning/clear status via binary message

Reliability Features

Programmable auto-alert to satellite/field sensor outage; watchdog timer

Software

TWXS1200, Lightning and EFM Data Archive, Internal Relay Test, Configuration Module

Electric Field Mill Operational Specifications

Electric Field Range -10 kV/m to +10 kV/m

Accuracy

±2% of full-scale reading in absolute field of ± 300-10,000 V/m

See Vaisala Electric Field Mill brochure for more detailed specifications

Master Alarm Distribution System MADS

Capacity

Basic system supports up to 23 remote RAD sites; expandable to support 47 RADS

Output

RS-422, binary format

Direct link with client punch-down block and similar interfaces

Remote Alarm Distribution System RADS

Basic Display

Employs 20 dual-LED sets per colored light panel to ensure adequate level of visual reporting of lightning threat status

Three colored (red, yellow, green) light panels support up to five combinations of threat condition and status indication.

Audible alarm with re-arm feature.

Communications

RS-422 signal. Output module can support piggyback of additional RAD.

Reliability Features

Visually alerts user to outage of master processor or servicing communications line.

Built-in battery backup.

Support Services and Standard Warranty

Training, technical support, and spare parts are available for maintaining optimal system performance. Vaisala warrants all products manufactured by Vaisala to be free from defects in workmanship or material for one year from the date of delivery. Contact your Vaisala Sales Representative for specific support services and warranty details.



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Please look for other Vaisala locations at www.vaisala.com